SECOND SUPERFUND FIVE-YEAR REVIEW

VOGEL PAINT AND WAX COMPANY SITE

MAURICE, IOWA

September 13, 2004

Prepared by

Iowa Department of Natural Resources
Contaminated Sites Section
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII
901 NORTH 5TH STREET
KANSAS CITY, KANSAS 66101

24 SEP 2004

MEMORANDUM

SUBJECT: Vogel Paint and Wax Company Site
EPA ID #IAD980630487
Second Five-Year Review Report

FROM: James Colbert, Remedial Project Manager
SUPR/IANE

THRU: Glenn Curtis, Chief
SUPR/IANE

TO: Cecilia Tapia, Director
Superfund Division

The Iowa Department of Natural Resources (IDNR) is the lead agency for the Vogel Paint and Wax Company site located near Maurice, Iowa. The enclosed Five-Year Review report, dated September 13, 2004, was prepared by IDNR in consultation with the U.S. Environmental Protection Agency (EPA) Region VII. This is the second five-year review for the site.

The Second Five-Year Review report concludes that the remedy at the Vogel site currently protects human health and the environment because there is no exposure to site-related contaminants. However, in order for the remedy to be protective in the long-term, the potential for off-site migration of contamination needs to be determined and controlled, if necessary, to ensure long-term protectiveness.

Therefore, the following recommendations will be implemented by Vogel. These actions should be completed within a year. Another explanation of significant differences (ESD) or a record of decision (ROD) amendment may be necessary as a result of these recommendations.

1. Continue monthly monitoring of the off-site groundwater contamination.
2. Determine the extent of off-site contamination.
3. Reevaluate potential remedial action alternatives and the need for additional remedial action.

EPA Region VII concurs with the above conclusions and recommendations.

Cecilia Tapia, Director
Superfund Division
U.S. EPA, Region 7

9/24/04
Date

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List of Acronyms

ARARs	Applicable or relevant and appropriate requirements
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
EPA	U.S. Environmental Protection Agency
ESD	Explanation of Significant Differences
FS	Feasibility Study
HAL	Lifetime Health Advisory Level
IDNR	Iowa Department of Natural Resources
MEK	Methyl Ethyl Ketone
MCL	Maximum Contaminant Level
NCP	National Contingency Plan
NPL	National Priorities List
RAO	Remedial action objective
RCRA	Resource Conservation and Recovery Act
RD/RA	Remedial Design/Remedial Action
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
VOCs	Volatile Organic Compounds
Vogel	Vogel Paint and Wax Company

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name *(from WasteLAN)*: Vogel Paint and wax Company Superfund Site		
EPA ID *(from WasteLAN)*: IAD980630487		
Region: 7	**State:** IA	**City/County:** Maurice/Sioux

SITE STATUS	
NPL status: X Final. ☐ Deleted ☐ Other (specify)	
Remediation status (choose all that apply): ☐ Under Construction X Operating ☐ Complete	
Multiple OUs?* ☐ YES X NO	**Construction completion date:** 8 / 28 / 1998
Has site been put into reuse? ☐ YES X NO	

REVIEW STATUS	
Lead agency: ☐ EPA X State ☐ Tribe ☐ Other Federal Agency	
Author name: Robert D. Drustrup	
Author title: Remedial Project Manager	**Author affiliation:** Iowa Dept. of Natural Resources
Review period:** 6 / 12 / 2003 to 6 / 30 / 2004	
Date(s) of site inspection: 6 / 12 / 2003	
Type of review: X Post-SARA ☐ Pre-SARA ☐ NPL-Removal only ☐ Non-NPL Remedial Action Site ☐ NPL State/Tribe-lead ☐ Regional Discretion)	
Review number: ☐ 1 (first) X 2 (second) ☐ 3 (third) ☐ Other (specify)	
Triggering action: ☐ Actual RA On-site Construction at OU #___ ☐ Actual RA Start at OU# NA ☐ Construction Completion X Previous Five-Year Review Report ☐ Other (specify)	
Triggering action date *(from WasteLAN)*: 9 / 21 / 1998	
Due date *(five years after triggering action date)*: 9 / 21 / 2003	

* ["OU" refers to operable unit.]
** [Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

Executive Summary

The Vogel Paint & Wax Company (Vogel) Superfund site is located about 2 miles south and 1 mile west of city of Maurice in northwestern, Iowa. From 1972 to 1979 Vogel used two acres of the 80-acre site for the disposal of wastes from their manufacturing of paint and varnish at their plant in nearby Orange City. In 1986 the site was placed on the Superfund National Priorities List due to contamination of groundwater with paint solvents. A series of investigations led to the development of a cleanup plan as presented in the September 1989 Record of Decision (ROD). The cleanup plan called for excavation and land treatment of the contaminated soil from the 2-acre disposal area and pumping and treating of the contaminated groundwater. Cleanup activities were initiated in 1991. The ROD was revised with Explanation of Significant Differences (ESDs) in 1994 and again in 2000.

Cleanup of 65,000 cubic yards of contaminated soils from the 2-acre disposal area was initiated in 1991 and successfully completed in 1999. Roughly 150,000 gallons of paint solvents were removed as a result. Treated soils were placed back into the original disposal area and covered with clean soil. About 2,200 cubic yards of soils containing elevated lead levels were stabilized with lime and placed in a separate area. Groundwater remediation has involved pumping and treating of groundwater. Treatment is by air stripping. About 275 million gallons of groundwater have been pumped and treated to date. About 15,000 gallons of free product (primarily xylene) have been recovered concurrently with the groundwater pumping activities. These solvents have been disposed of at an out-of-state hazardous waste facility.

The 1989 ROD did not anticipate the collection of the large quantities of free product. Instead, the original cleanup plan concentrated on solvent-related contamination tied-up in soils and dissolved in groundwater. However, as cleanup activities progressed, it became apparent that a substantial volume of free product had moved south of the original disposal area where it was largely tied up in soil just above the groundwater table. This area of free product was stable; however, it was acting as a source of dissolved groundwater contamination and continued the need for pumping and treating of groundwater. To address this situation Vogel conducted a major excavation of the free product area in the late fall of 2000 in accordance with the October 2000 ESD. Contaminated soils from near the groundwater table were moved near the surface, out of contact with the groundwater, and a system of ventilation pipes was installed within the repositioned soils to facilitate bioventing.

The remedial actions taken in 2000 initially resulted in a major decrease in the amounts of recoverable free product. After another year of groundwater pump and treat actions, conditions were such that the Iowa Department of Natural Resources (IDNR) allowed Vogel to cease the groundwater pump and treat actions. In July of 2003 ongoing monitoring of groundwater revealed off-site migration of contamination to the south, although no water supply wells were threatened. The groundwater pump and treat system was reactivated in August of 2003 to stop the off-site migration of contamination.

This five-year review has identified the following issues:

- The extent and fate of off-site groundwater contamination has not been determined.
- The ability of the existing groundwater remediation system to prevent off-site migration of contaminants is in question.
- Despite extensive measures to eliminate the source of groundwater contamination, groundwater contamination persists at significant concentrations.

Recommendations for follow-up action based on the five-year review include:

- Continue monthly monitoring of the off-site groundwater contamination.
- Determine the extent of off-site contamination.
- Reevaluate potential remedial action alternatives.

This five-year review concludes that the remedy at Vogel site currently protects human health and the environment because there is no exposure to site-related contaminants. However, in order for the remedy to be protective in the long-term, the potential for off-site migration of contamination needs to be determined and controlled, if necessary, to ensure long-term protectiveness. The next five-year review for the Vogel Superfund site is scheduled for completion in September of 2009.

1.0 Introduction

The purpose of the five-year review is to confirm that the remedy at a Superfund National Priorities List (NPL) site continues to be protective of human health and the environment. The conclusions of the review are documented in the Five-Year Review report. The Five-Year Review report identifies issues found during the review, if any, and gives recommendations.

This Five-Year Review report is prepared pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) § 121 and the National Contingency Plan (NCP). CERCLA § 121 states:

> *If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after initiation of remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgement of the President that action is appropriate at such a site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to Congress a list of facilities for which such review is required, the results of such reviews, and any actions taken as a result of such reviews.*

The U.S. Environmental Protection Agency (EPA) has interpreted this requirement further in the National Contingency Plan (NCP); 40 Code of Federal Regulations (CFR) §300.430(f)(4)(ii) states:

> *If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.*

The Iowa Department of Natural Resources (IDNR) has conducted a five-year review of the remedial action implemented at the Vogel Paint & Wax Company site (Vogel site) near the city of Maurice in Sioux County, Iowa. This review was conducted by IDNR in cooperation with the regional office of EPA (EPA Region VII) for the Vogel site from September 1998 through June 2004. This report documents the results of the review.

This is the second five-year review for the site. The first five-year review was completed in September 1998. The triggering action for this second statutory review is the completion of the previous five-year review. This review was delayed to address emerging issues. The five-year review is required because hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure.

2.0 Site Chronology

Table 2-1 presents a summary of the major site events and relevant dates in the site chronology.

Table 2-1
Chronology of Site Events

EVENT	DATE
Site discovery by the state following concerns expressed by nearby residents about rural water wells in the vicinity of the waste disposal area	Spring 1979
Site proposed for the National Priorities List (NPL).	10/15/1984
Final listing on the NPL.	06/10/1986
A Consent Order was signed by the state and responsible party requiring completion of a remedial investigation/feasibility study (RI/FS).	06/08/1987
RI/FS completed and Record of Decision (ROD) issued.	09/20/89
The Consent Order was amended to implement the remedial design and remedial action as prescribed in the ROD.	07/23/90
Groundwater remedial action was begun.	Spring 1991
Soil remedial action was begun	10/1991
Groundwater remediation system began normal operation	03/1992
Groundwater remedial action report indicating the groundwater actions to be operational and functional.	10/05/1992
An Explanation of Significant Differences (ESD) was issued that increased the scope of cleanup actions.	07/20/1994
First Five-Year Review completed	09/26/1998
Soil-related site work completed	Spring 2000
Second ESD issued which prescribed enhanced free-product removal actions by excavating the contaminant plume and bioventing.	10/2000
Enhanced free-product excavation completed	01/2001
Operation of groundwater remediation system suspended.	01/2003
New consent order finalized recognizing completion of soil remedial activities and specifying criteria for closure of groundwater actions.	05/23/2003
Off-site groundwater contamination discovered and the groundwater remediation system re-activated.	08/2003

3.0 Background

3.1 Physical Characteristics

The Vogel site is located on land generally described as the W ½ of the NW ¼ of Section 29, T94N, R45W, Sioux County, Iowa (Figure 3.1). The Vogel Paint and Wax Company (Vogel) is the owner of record. The site is approximately two miles south and one mile west of Maurice, Iowa. Remedial activities at the site have been concentrated on about 25 acres in the south-central portion of the 80-acre property. The site is in a rural, agricultural area and is relatively isolated, although two private residences exist within about a quarter of a mile of the active portion of the site to the northwest and southwest. The site is accessible from a gravel road on the west side of the site. The topography is gently rolling. An unnamed tributary to the West Branch of the Floyd River runs through the north side of the site. A shallow sand and gravel aquifer underlies the site. The two nearby residences previously utilized private wells in this aquifer immediately west of the site. Ongoing monitoring has not revealed contamination in these two wells. These two residences are now connected to rural water. Approximately a mile and a half southeast of the site is the well field for a rural water system that serves approximately 3,000 people.

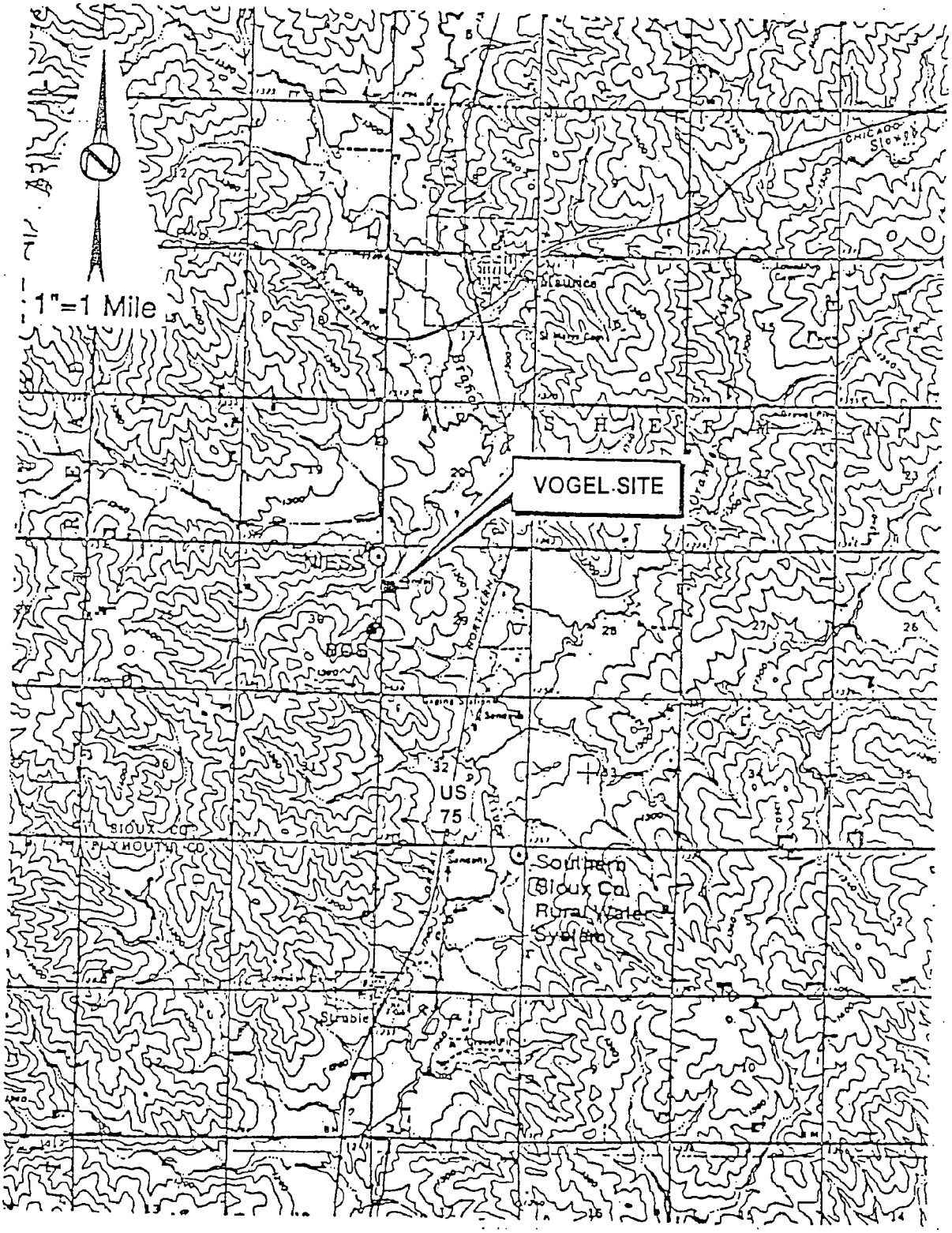
3.2 Land Resource and Use

Land in the vicinity of the Vogel site is primarily used for agricultural purposes, i.e., row crops and livestock feeding operations. As stated above, two residences are located about a quarter mile west of the site. Other rural residences are over three-quarters of a mile from the site.

Two sand formations underlie the site separated by a relatively impermeable glacial till. Groundwater in the thin upper sand unit generally flows to the north following the topography. Groundwater in the lower sand unit generally flows to south. The two sand formations merge in the area of the disposal cell where groundwater from the upper sand unit reverses flow as it drains into the lower aquifer. Two residences previously utilized shallow wells immediately west of the site, but are now served by rural water. These wells still exist and are used for non-household purposes. A rural water system has shallow wells about a mile and a half southeast of the site. It is not known whether groundwater in the lower aquifer is drawn into the rural water well field.

Portions of the 80-acre site, which are not part of the 25 acre area where remedial activities have been concentrated, have been continued to be planted in row crops. Areas of the site where soil remediation activities have occurred have a grass cover. No significant change in land use in the area is anticipated in the foreseeable future.

Figure 3.1 Site Location Map



3.3 History of Contamination

The Vogel plant in nearby Orange City, Iowa generated waste that was disposed of at the site from 1972 through 1978. Vogel disposed of paint sludge, resins, solvents and other solid wastes at the site. These wastes contained zinc, lead, chromium, mercury, toluene, xylenes, naphtha, methyl ethyl ketone, and methyl isobutyl ketone. It was estimated that 143,000 cubic feet of solid waste were disposed at the Vogel site and 123,000 gallons of liquid waste.

Prior to its use for waste disposal, a gravel pit encompassing about 2 acres was located in the west-central portion of the 80-acre property. The remainder of the site was tilled for agricultural purposes. Waste disposal trenches were first excavated in the area just south of the abandoned gravel pit in 1972. Waste disposal took place through 1978. The disposal area consisted of slot-dozed trenches to a depth of 8 to 12 feet. Waste liquids were poured into the trenches from 55-gallon drums. Miscellaneous plant debris was used to top off the trenches. When the level of the waste approached the original ground surface, the trench was covered with one to two feet of cover. This cover material was the clayey, silt loess soils, which had been excavated from the trenches. The floor of the former gravel pit was apparently filled with several feet of loess-derived clayey silt soil. Another system of trenches was developed in this area. These trenches were used primarily for disposal of wooden pallets, packing material, and other debris.

3.4 Initial Response

In the spring of 1979 the State of Iowa conducted initial investigations at the site in response to concerns regarding a proposed rural water district well field about 1.5 miles southeast of the Vogel site. Beginning in 1979 Vogel conducted hydrogeological investigations of the site. In 1984 Vogel placed a 2 ft. thick clay cap over the entire disposal area. Investigations revealed a plume of groundwater contamination extending about 1,000 feet south of the disposal area and evidence of floating volatile organic compounds (VOCs) on the water table of the lower sand and gravel aquifer. In 1984 Vogel was ordered by the state to withdraw the floating VOCs from the water table which they continue to do.

3.5 Basis for Taking Action

The site was proposed as a candidate site for the National Priorities List (NPL) in October of 1984 and became a final NPL site in June of 1986. The Vogel site scored for NPL eligibility based solely on the threat to groundwater. About 3,500 people, including the towns of Maurice and Struble and the Southern Sioux County Rural Water District have groundwater sources within a four-mile radius of the Vogel site.

In June of 1987 Vogel entered into a consent order with IDNR for conducting a Remedial Investigation (RI) and Feasibility Study (FS) of the site in accordance with the federal Superfund

program. The IDNR has been the lead agency for the Superfund action at the Vogel site. The order was amended in 1990 to include conduct of the remedial design/remedial action (RD/RA) as prescribed in the 1989 ROD. In May of 2003 the IDNR and Vogel entered into another consent order that recognized the actions already completed and prescribed the remaining actions necessary for final closure of the site.

4.0 Remedial Actions

4.1 Remedy Selection

The RI/FS was completed and a Record of Decision (ROD) signed for the site in September 1989. The ROD required remedial action consisting of on-site, aboveground bioremediation of the contaminated soils, and treatment of the contaminated groundwater by pumping, air stripping, and surface discharge.

The ROD was modified twice with Explanation of Significant Differences (ESDs). The first ESD in July 1994 acknowledged the soil treatment to be largely by volatilization, clarified air standards, and described the increased scope and cost of the project. The second ESD was issued in October of 2000. The second ESD prescribed enhanced free-product recovery actions, clarified criteria for compliance with groundwater standards, allowed for the use of another form of institutional control, and described the infiltration of treated groundwater into the aquifer to facilitate free product removal in lieu of discharge to the unnamed stream.

4.2 Remedy Implementation

Although groundwater and soil remedial actions were not formally labeled operable units in the ROD, they have essentially been addressed as separate actions. Excavation and treatment of soils began in October of 1991. An August 1994 preliminary closeout report certified that the soils remediation was operational and functional. Soil remedial actions involved: excavation of wastes from the waste disposal cells; separation of solid and liquid waste for off-site disposal as hazardous or non-hazardous waste, as appropriate; treatment of soils by landfarming; stabilization and special placement of metals-contaminated soils; and backfilling the excavation with treated soils. The excavated area encompassed about 2 acres in the west-central portion of the site. Soils were excavated to a depth of about 20 feet. Soil remediation was completed in May of 1999. A total of 65,000 cubic yards of soil were remediated. Site work related to the soil actions was completed in the spring of 2000. A Remedial Action Report certifying the completion of soil remediation was issued in September of 2000.

Construction of the groundwater remediation began in the spring of 1991. Normal operation of the groundwater remediation system was begun in the spring of 1992. The Groundwater Remedial Action Report was issued in October of 1994, which certified the groundwater

remediation system as operational and functional. The groundwater remediation system consists of five recovery wells (only 4 of which are currently used) with treatment provided by an air stripper tower. Discharge of treated water flows overland to an infiltration basin located upgradient of the original disposal cell. The system has not been operated during the winter months due to freezing problems. From March of 1992 through June of 2004 over 275 million gallons of groundwater have been pumped and treated. About 10,000 gallons of dissolved phase contamination have been removed by these pump and treat actions.

Operation of the groundwater remediation system was ceased in the spring of 2003 in accordance with the October 2000 ESD and May 2003 consent order. It was believed that groundwater contamination was stable and that pumping would not be necessary to prevent off-site migration of contamination. (On-site use of groundwater is prevented by institutional controls.) However, monitoring conducted in accordance with the consent order revealed off-site migration of contaminants in July of 2003 and, in accordance with the consent order, the groundwater remedial system was reactivated.

Free product recovery is performed by a dual pumping system in two recovery wells. Approximately 15,000 gallons of free product have been recovered from these wells to date. As remedial activities progressed, it became apparent that a large volume — estimated to be 80,000 to 150,000 gallons — of additional free product had migrated south of the disposal area where it was tied-up in soils just above the groundwater table and acting as a continued source of groundwater contamination. Excavation of an area about 500 ft. by 200 ft. by 35 ft. deep was conducted from October 17, 2000 to January 11, 2001 in accordance with the October 2000 ESD. The non-contaminated shallow soils were placed at the bottom of the excavation and the contaminated soils from depth were placed on top. A system of ventilation pipes was placed through the re-positioned contaminated soils to provide air to facilitate natural aerobic breakdown of contaminants (i.e., bioventing).

4.3 Systems Operation & Maintenance

The 2003 consent order requires weekly sampling of the influent and effluent from the groundwater remediation system when it is in operation. Effluent standards have been established which continue to be consistently achieved through June 2004 by the groundwater remediation system. Periodic cleaning and occasional replacement of the packing media in the air stripper is necessary. Continued recovery of free product is required until significant quantities no longer exist. Free product is stored on-site and is periodically removed for disposal to an approved off-site facility.

A groundwater-monitoring program is in place that calls for routine quarterly monitoring. Ten wells surrounding the contamination plume are designated as perimeter wells. Four additional monitoring wells are monitored in the heart of the plume. Two intermediate wells (a.k.a. guard wells) are located upgradient of the southern perimeter wells to provide an early warning of potential off-site migration of contaminants. Compliance with groundwater ARARs is achieved

as long as maximum contaminant levels (MCLs) for drinking water are not exceeded at the perimeter wells. The three southern-most perimeter wells are the most critical perimeter wells since they are downgradient of the contaminant plume. Monthly monitoring is required for as long as contaminant levels exceed MCLs in any guard well or perimeter well.

If MCLs are not exceeded in any guard or perimeter well for a period of a year and there is no evidence to suggest increased contaminant levels in the future, operation of the groundwater remediation system may be ceased. The groundwater remediation system must be returned to active service at such time that contaminant levels exceed MCLs for three consecutive months in any guard well or at any time in a perimeter well. The groundwater remediation system may be permanently taken out of service after two consecutive years without an MCL exceedence in a guard or perimeter monitoring well and no other evidence suggests that noncompliance may occur in the future.

The areas where soil remediation was conducted require minimal maintenance. The areas have a grass cover that is periodically mowed. The areas are inspected for damage by erosion and repairs will be made as necessary. The area where soils with elevated lead levels were placed is clearly marked for future reference.

5.0 Progress Since Last Review

5.1 Protectiveness Statement from Last Five-Review

The last five-year review indicated that the selected remedy remained protective of human health and the environment.

5.2 Status of Recommendations and Follow-Up Actions from the First Five-Review

A re-evaluation of the air-monitoring program was recommended in the first five-year review. However, the soil remediation activities that were the dominant source of air vapors were completed shortly after the last five-year review. Therefore, this recommendation is no longer relevant. Air monitoring concerns were addressed in the subsequent short-term excavation to enhance free-product removal and no problems were reported during that activity.

The first five-year review noted a violation of labeling and storage of hazardous waste (i.e., free product) under RCRA ARARs. As a result proper labeling was provided on the free product storage tanks. The rate of free product removal has decreased substantially since the first five-year review.

The first five-year review noted occasional violations of the effluent limits for discharge from the air stripper, but noted that the problems appeared to be under control. Several violations have been identified since the first five-year review. However, the violations have not been by a large magnitude and have been infrequent. The air stripper discharge is no longer to the surface stream; therefore, the purpose of the effluent limits (i.e., to protect surface water) is no longer relevant. Overall, operation of the air stripper has been excellent.

The existence of a substantial quantity of residual free-product was noted in the first five-year review, suggesting a need for long-term operation of the groundwater remediation system if enhanced free-product recovery was not accomplished. A major effort to enhance free-product removal was conducted in accordance with the October 2000 ESD.

5.3 Results of Implemented Actions

Since the first five-year review the soils remediation was competed in 2000. A total of approximately 65,000 cubic yards of contaminated soil was landfarmed/bioremediated. Approximately 3,500 cubic yards of solid waste material were removed from the excavated soils and disposed of at a sanitary landfill. Also, approximately 220 barrels of paint sludge and liquid solvents were disposed of at an EPA permitted disposal facility, the Systech Environmental Corporation in Fredonia, Kansas. The excavation was left open to aerate until final backfilling during the summer of 1999. The treated soil was placed back into the excavation during the summer of 1999. The entire area of excavation was covered with approximately 3' of clean soil and 1' of topsoil.

About 2,200 cubic years of soils that failed the TCLP test for lead were isolated and handled separately. These soils were stabilized with 20% lime addition and placed in a designated portion of the excavation with that is a minimum of five feet above the highest groundwater level of record with a minimum of five feet of clean cover material above it. Institutional controls will ensure that the area of lead-contaminated soils is not disturbed. The location of the lead-soil disposal area has been clearly marked and recorded.

The enhanced free-product removal activity was competed in 2001. Substantially reduced free product amounts were found initially. More recently the rate of recovered free product has increased to near previous rates. This is likely due to exceptionally wet conditions during the early summer of 2004. The free-product recovery level may decline as precipitation returns to normal, but the long-term impact of the enhanced free-product action is not yet known.

Groundwater contamination at the Vogel site has been stable and was so even before the onset of remedial actions at the site. With the bulk of the free product taken out of direct contact with the groundwater from the enhanced free-product removal activity, it was believed the groundwater conditions would improve. Therefore, groundwater remedial actions were allowed to cease in 2003 in accordance with the October 2000 ESD. Subsequent groundwater monitoring revealed

off-site migration of contaminants at levels above MCLs in July 2003 and a need to reactivate the groundwater remediation system.

6.0 Five-Year Review Process

6.1 Administrative Components and Community Involvement

The five-year process was initiated in June 2003 with a site inspection. At that time active remedial activities at the site had been substantially completed. In accordance with the 2000 ESD and 2003 consent order, the groundwater remediation system was inactive in anticipation of final closure after two years of groundwater monitoring. The surface features of the site were found to be in good condition at that time. Subsequent groundwater monitoring revealed unexpected off-site migration of contamination. The five-year review process was delayed pending follow-up action to address the off-site contamination.

The Vogel site is located in a sparsely populated rural area of northwest Iowa. Very few parties are potentially impacted by the site. The site is not highly visible and has received little publicity. Vogel has maintained contact with the two residences in closest proximity to the site. The downgradient property owner has been apprised of the off-site contamination and has given permission to install monitoring wells. Therefore, major efforts to involve the public have not been undertaken for this five-year review process.

In August 2004 a public notice regarding the Vogel Five-Year Review was published in the Sioux County Capital-Democrat, LeMars Daily Sentinel, and Sioux City Journal. Individual notices were sent to the two residences west of the site, the property owner south of the site, and the Southern Sioux County Rural Water District.

The following individuals have been involved in the five-year review of the Vogel site:

Bob Drustrup, Project Manager, Contaminated Sites Section, IDNR
Cal Lundberg, Supervisor, Contaminated Sites Section, IDNR
Jim Colbert, Remedial Project Manager, Superfund Division, U.S. EPA Region VII
Scott Heemstra, Corporate Director of Manufacturing, Diamond Vogel Paints
Tom Chap, Senior Project Manager, Geotek Engineering & Testing Services, Inc.

6.2 Document Review

This second five-year review consisted of a review of relevant documents including monitoring data for the site. A complete list of documents reviewed as part of the five-year review process is included in Appendix "A". Applicable cleanup standards were reviewed and are listed in Appendix "B".

6.3 Data Review and Evaluation

Data have been collected at the Vogel site from air monitoring, influent and effluent sampling from the groundwater remediation system, and sampling of groundwater monitoring wells. In the last five-year review air emissions were presented as a major concern — two incidents of complaints by a neighbor had been reported. Steps were implemented to prevent further air-emission problems and no additional incidents occurred after the last five-year review. With the completion of remedial actions involving excavation of contaminated soils in January 2001, air emissions are no longer an issue and air monitoring is no longer conducted.

Groundwater remediation system data: Weekly influent and effluent sampling of the groundwater remediation system is conducted. Appendix "C" provides lists of the results of all influent and effluent samples since the last five-year review. The average influent and effluent sampling results during this review period is provided below.

Chemical	Influent (PPM)	Effluent (PPM)	ARAR (PPM)
Benzene	0.017	<0.002	0.005
Ethylbenzene	8.4	<0.004	0.025
Toluene	2.4	<0.004	0.010
Xylenes	33.2	<0.012	0.100
MEK	0.095	<0.006	--

The October 2000 ESD recognized re-infiltration of the treated groundwater in lieu of discharge of the treated water to the unnamed stream. As such, effluent ARARs are no longer pertinent with respect to surface water. However, the same effluent ARARs have been prescribed in the 2002 Consent Order, except for Methyl Ethyl Ketone (MEK). At the last five-year review the effluent limit for MEK was 0.2 PPM based on the drinking water lifetime health advisory level (HAL). The HAL for MEK has since been revised to equal 4 PPM. Since influent concentrations of MEK have never approached 4 PPM, MEK no longer has an effluent ARAR.

The effluent limits have been attained for all but 9 of the 139 sampling events since the first five-year review. None of the exceedences have been more than twice the standard. The IDNR split effluent samples in October of 2001 and June of 2002 and found no detection of contaminants from either sample. With the exception of a 5-week period just before the seasonal shutdown in the fall of 2001, contaminant exceedences have been isolated events. The system was inspected prior

to startup of pumping in 2002 and only two isolated minor exceedences occurred from then through June of 2004.

Graphs of influent contaminant concentrations versus time are also included in Appendix "C". The levels of toluene appear to be decreasing with time, but the levels of ethylbenzene and xylenes appear to be increasing. Overall there is no discernable trend in concentrations of contaminants in the influent to the groundwater remedial system versus time.

In conclusion, the groundwater remediation system continues to function effectively, although there is no evidence of decreasing contaminant levels as a result of the completed source removal actions.

Free product recovery data: Two of the five groundwater recovery wells have been equipped with free-product recovery equipment. A summary of free-product recovery from the two wells since 1992 is included as Appendix "D". A total of about 15,000 gallons of free product has been recovered from these two wells since 1992. Substantially reduced quantities of free-product recovery occurred starting in 2000. In the summer of 2004, free-product recovery rates appear to be increasing. This may be in response to an unusually wet year.

Recoverable amounts of free product persist despite efforts to substantially reduce amounts of free product.

Data from groundwater monitoring wells: The groundwater monitoring plan was modified in February 2002 in anticipation of the May 2003 Consent Order. Ten wells were designated as perimeter wells. The perimeter wells surround the area of groundwater contamination. The purpose of the perimeter wells is to ensure that off-site migration of contaminants above groundwater ARARs does not occur. Four monitoring wells located within the heart of the contaminant plume area also included in the current monitoring program to track the overall magnitude of the contaminant plume. Appendix "E" includes a compilation of groundwater monitoring data since the first five-year review and map of all the site monitoring wells.

All ten perimeter wells have had a history of little or no contamination. In July 2003 guard wells GMW15-20 were installed. Significant contamination was unexpectedly found in several of the guard wells. In July 2003 perimeter well No.GMW-7 was replaced because a sample could no longer be acquired from it. The replacement well (GMW-7R) is of similar construction at an adjacent location. Groundwater samples from GMW-7R unexpectedly revealed ethylbenzene at ten times the groundwater ARAR and xylenes at about twice the standard. The groundwater remedial system was reactivated in response to this finding. In April of 2004 additional monitoring wells GMW-21, 22 & 23 were installed about 200 feet downgradient (i.e., south) of perimeter well GMW-7R. Contaminant levels are generally below groundwater ARARs for these downgradient wells with the exception of ethylbenzene that is still found at around five times the standard. While contaminant levels are still being found off-site at levels above ARARs, operation of the groundwater recovery wells has established a hydraulic gradient from the off-site area back toward the site.

Continued monthly sampling of the southern perimeter and off-site wells is currently being conducted to monitor the off-site contamination. A decision will be made this fall as to what, if any, additional action or change in the current response action is necessary. Fortunately, no downgradient water-supply wells are currently threatened.

Appendix "E" includes graphs of contaminant levels versus time for the interior monitoring wells that are part of the current groundwater monitoring program and the impacted perimeter and off-site monitoring wells. Appendix "E" also includes a table of recent groundwater monitoring results.

7.0 Technical Assessment

7.1 Question A: Is the remedy functioning as intended by the decision documents?

The soil remedial actions have been competed at the Vogel site. The intent of the soil remediation was to eliminate the source of groundwater contaminants. The soil remediation action that was completed in 1999 successfully removed roughly 150,000 gallons of solvent-related contamination by landfarming/bioremediation. An additional 220 barrels paint sludge and liquid solvents were removed directly. Free-product recovery- associated with the groundwater remediation system has removed another 15,000 gallons of product. About 10,000 gallons of dissolved product has been removed by the groundwater remediation system. In addition, actions were taken in late 2000/early 2001 to move an estimated 80,000+ gallons of free product out of direct contact with groundwater and measures were taken to facilitate its in-situ biodegradation. (These quantities add up to about twice the originally estimated volume that was disposed of at the site.) Despite all of these efforts, residual free product persists and no significant improvement in groundwater quality has occurred.

The groundwater remediation system was designed to contain groundwater contamination, which it apparently did until 2003 when its operation was temporarily discontinued. There was no evidence of off-site contamination until July of 2003. Reduced recovery from perimeter monitoring well GMW-7 was noted in early 2003. GMW-7 is believed to have functioned properly until that time. A replacement well was constructed in July of 2003 in which contamination above ARARs was found. Several explanations for the off-site groundwater contamination exist, including:

- Off-site contaminant migration could have existed for some time but was not being detected.
- The activities of late 2000/early 2001 to enhance free-product removal by moving contaminated soil out of contact with the groundwater may have resulted in (temporarily?) mobilizing more contaminants.
- Discontinued operation of the groundwater remediation system in early 2003 could have allowed contamination to migrate off-site.

The groundwater remediation system appears to have been operated effectively, although its effectiveness in capturing the off-site contamination is still being evaluated. The air stripper continues to consistently meet effluent ARARs. The cold-weather shutdown of the groundwater remediation system may need to be reevaluated in light of the finding of off-site groundwater contamination. The groundwater remediation system was designed to accommodate higher flow rates. Location of recovery wells may need to be reconsidered. Effluent limits were established based on a discharge to surface water. Therefore, a reassessment of the entire groundwater remediation system may be warranted. A more optimal design may result in lower operation and maintenance and provide for effective winter operation if necessary costs.

The Vogel site is listed on the State Registry of Hazardous Waste or Hazardous Substance Disposal Sites. With this institutional control no on-site water supply well will be allowed, no excavation will be allowed in the area where metals-contaminated soils were placed, and, in general, no excavation will be allowed without appropriate precautionary measures. In accordance with the 2003 Consent Order, this institutional control may be replaced by an environmental protection easement pursuant to Iowa Code 455H.206 that includes the same restrictions. Expanding the area of institutional control to include the downgradient property may be an alternative that is consistent with the state's Land Recycling Program (chapter 567 Iowa Administrative Code 137). This may be a viable alternative because the impacted aquifer in the vicinity of the Vogel, is not currently used as a water supply, nor is it likely to be used as such in the future.

7.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of remedy still valid?

Exposure to contaminated groundwater has been the primary concern. To a lesser degree eventual discharge of contaminated groundwater to surface streams has been a concern. During the active soil remediation, exposure by inhalation was the major concern, but this is no longer an exposure route of concern since completion of the active soil remediation. Impact to surface streams has not been found and is highly unlikely to ever pose a significant threat. Discharges to surface waters no longer occur. Groundwater remains the primary route of exposure. No current or past exposure to groundwater impacted by the site has occurred. Given the relatively remote location of the site, future exposure to contaminated groundwater from the site is unlikely.

Concern for the site originally came about with the location of a rural-water system well field southeast of the Vogel disposal site. This well field is located on the other side of the West Branch Floyd River about a mile and a half southeast of the known contaminant plume. While groundwater appears to be moving in the general direction of the rural-water well field, it is not known whether groundwater from the site actually gets drawn into the well field. The groundwater flow direction at the site is also consistent with an anticipated natural direction of flow to the river. The West Branch Floyd River likely creates a natural boundary to groundwater flow. However, pumping could induce groundwater under the river. In any event, the contaminants from the Vogel site are amenable to natural degradation. Therefore, it is highly

unlikely that any contamination from the Vogel site will be drawn into the rural-water wells even with no additional action at the Vogel site.

Land use at and near the site has remained unchanged and no change is anticipated .

No new contaminant or contaminant byproducts have been identified. The 2000 ESD recognized the area immediately south of the disposal area as source of free-product at and just above the groundwater table. This area of free product was recognized as constituting a significant source of groundwater contamination that would continue to act as a source of groundwater contamination, despite the successful soil cleanup in the original source area.

The only change involving a chemical ARAR since the first five-year review has involved methyl ethyl ketone (MEK). Since the first five-year review the drinking water lifetime health advisory level for MEK changed from 0.2 mg/l to 4 mg/l. As a result, MEK is no longer a contaminant of concern in the air stripper effluent and the groundwater ARAR is now 4 mg/l.

The ROD prescribed remedial action objectives (RAOs) for soils/solid waste and groundwater. The RAO for soils/solid waste was to reduce migration of contaminants to groundwater by removal and/or treatment of the source, i.e., contaminated soils/solid waste. The remedial action objective for groundwater was to reduce contaminants in groundwater to established health-based standards for drinking water. The cleanup of soils/solid waste from the original disposal area has been successfully completed. The success of additional actions pursuant to the 2000 ESD to move free product tied up in soils near the groundwater table south of the original disposal area has yet to be determined. These actions may have exacerbated the movement of contaminants in groundwater. If so, this may be a short-term phenomenon with long-term benefits ultimately being realized.

The groundwater RAO was clarified in the 2000 ESD to establish compliance with groundwater ARARs at the property boundary as the RAO. This change was incorporated in the 2003 Consent Order. Subsequent off-site contamination above groundwater ARARs has been identified bringing into doubt the ability to achieve this objective without active groundwater pumping and treatment.

7.3 Question C: Has other information come to light that could call into question the effectiveness of the remedy?

As previously indicated, the late 2000/early 2001 remedial actions to enhance free-product removal may have exacerbated the groundwater contamination, at least in the short-term.

7.4 Summary of technical assessment.

The soils/solid waste remedial actions have been successfully completed. However, substantial amounts of residual free product persisted outside the original disposal area where the cleanup was achieved. Activities were taken in accordance with the 2000 ESD to move the residual free product, which was largely tied up in soils just above the groundwater table, out of contact with the

groundwater to enhance its aerobic degradation. This action may have exacerbated groundwater contamination, at least in the short term. Off-site migration of groundwater contamination was discovered in the summer of 2003. While the groundwater remediation system continues to effectively treat the pumped water, the ability of the system to prevent off-site migration of contamination in uncertain at this time.

8.0 Issues

8.1 Issues identified during the technical assessment.

1. The extent and fate of off-site groundwater contamination has not been determined. This recent issue does not affect current protectiveness since there are no nearby water-supply wells. This issue could affect future protectiveness if new water-supply wells are installed within the off-site contaminant plume or the contamination continues to migrate to an existing water-supply well, both of which are unlikely.

2. The ability of the existing groundwater remediation system to prevent off-site migration of contaminants is in question. As with Issue #1, this does not affect current protectiveness but could affect future protectiveness.

3. Despite extensive measures to eliminate the source of groundwater contamination, groundwater contamination persists at significant concentrations. As with Issues #1 & 2, this does not affect current protectiveness but could affect future protectiveness.

Table 8.1 Listing of Issues

Issues	Affects Protectiveness (Y/N)	
	Current	Future
The extent and fate of off-site groundwater contamination has not been determined.	N	Y
The ability of the existing groundwater remediation system to prevent off-site migration of contaminants is in question.	N	Y
Despite extensive measures to eliminate the source of groundwater contamination, groundwater contamination persists at significant concentrations.	N	Y

9.0 Recommendations and Follow-up Actions

The following recommendations will be implemented by Vogel with the IDNR as the lead oversight agency and Region VII EPA as the support agency. These actions should be completed within a year. Another ESD or a ROD amendment may be necessary as a result of these recommendations.

1. Continue monthly monitoring of the off-site groundwater contamination. If a determination can be made that the off-site contamination is being adequately controlled by the groundwater remediation system based on groundwater-level measurements and contaminant concentrations, the above issues may be resolved. If a determination can be made based on the monitoring results that the off-site contamination is a short-term problem, then the closure plan described in the 2000 ESD and 2003 Consent Order may be implemented.

2. Determine the extent of off-site contamination. Since the area of off-site contamination is in an agricultural field, continue to monitor per the first recommendation until crops are harvested in the fall. After the crops are out install additional monitoring wells to determine the extent of contamination, unless the issues are otherwise resolved with the additional monitoring per recommendation #1.

3. Reevaluate potential remedial action alternatives. Possible remedial action alternatives include:

    - Continued operation of the existing groundwater remediation system,
    - Installation and operation of a new or modified groundwater remediation system,
    - Placement of an institutional control that prohibits groundwater use on the impacted and potentially impacted downgradient property or properties,
    - Actions to reduce the effects of additional contaminant release, if such releases are found to be attributed to the enhanced free-product removal actions that were conducted in accordance with the 2000 ESD.
    - Other free-product recovery measures.

Table 9.1 Listing of Recommendations and Follow-up Actions

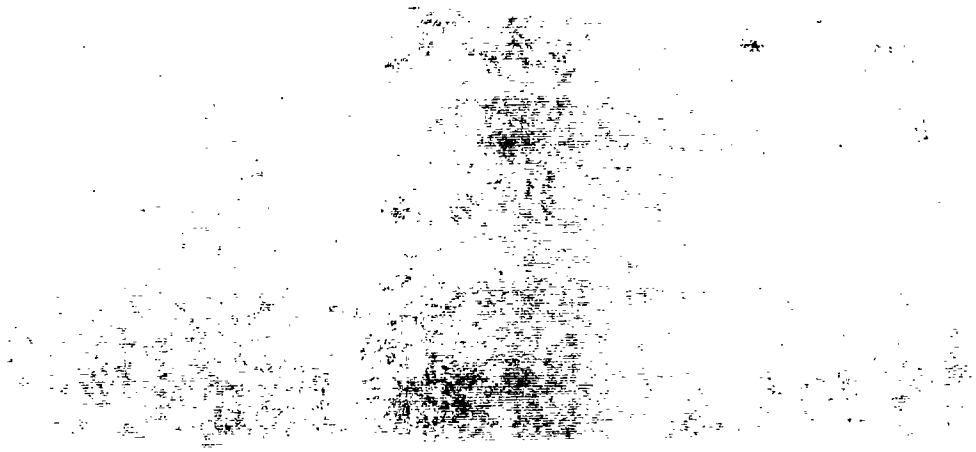
Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Follow-up Actions: Affects Protectiveness (Y/N)	
				Current	Future
Continue monthly monitoring of the off-site groundwater contamination.	Vogel	IDNR	Ongoing as needed. Assess in 10/04	N	Y
Determine the extent of off-site contamination.	Vogel	IDNR	12/04	N	Y
Reevaluate potential remedial action alternatives.	Vogel	IDNR	4/05	N	Y

10.0 Protectiveness Statement

The remedy at Vogel site currently protects human health and the environment because there is no exposure to site-related contaminants. However, in order for the remedy to be protective in the long-term, the potential for off-site migration of contamination needs to be determined and controlled, if necessary, to ensure long-term protectiveness.

11.0 Next Five-Year Review

The next five-year review for the Vogel Superfund site is required in September of 2009.



ATTACHMENT "A"

Site Documents Reviewed

DOCUMENT	DATE
Record of Decision for the Vogel Paint and Wax Company Site, Maurice, Iowa	9/14/1989
Explanation of Significant Differences Vogel Paint and Wax Company Site	7/20/1994
Explanation of Significant Differences Vogel Paint and Wax Company Site	10/2000
Remedial Action Report, Vogel Paint and Wax Company Superfund Site, Maurice, Iowa, Soil Remediation Operable Unit	09/2000
Superfund Five-year Review Vogel Paint and Wax Company Site, Maurice, Iowa	09/21/1998
Consent Order No, 2003 HC-02 VPW and IDNR	05/23/2003
2002 Groundwater Monitoring Plan with Quality Assurance/Quality Control Procedures	02/26/2003
2003 Remediation System Annual Report	05/18/2004
Report on Excavation of Free Product Plume and Bioventing of the Contaminated Soils	04/2000
IDNR Records Center, File No. CON 12-15 Vogel Paint & Wax	
Spreadsheet with compilation of monitoring data from Geotek Engineering & Testing Services, Inc.	07/2004

ATTACHMENT "B"

Cleanup Standards

Parameter	Discharge Limit from Air Stripper (mg/l)*	Groundwater Cleanup Standard (mg/l) **
Benzene	0.005	0.005
Ethylbenzene	0.025	0.7
Toluene	0.01	1.0
Xylene	0.100	10.0
MEK	not applicable	4.0

* Air stripper discharge limits are based on best available treatment technology.

** Groundwater cleanup standards are based on drinking water maximum contaminant levels (MCLs) except for MEK which is based on the drinking water lifetime health advisory level (HAL). Groundwater cleanup standards are to be achieved at the property boundary.

ATTACHMENT "C"

Compilation of Contaminant Concentrations

In the Influent and Effluent

From the Vogel Paint & Wax Company

Groundwater Treatment Plant

From October 1998

Through June 2004

TABLE 1

COMPLETE VOGEL SITE WTP INFLUENT DATA SUMMARY in ppb

Date	Flow mgd	Benzene	Toluene	E. Benzene	Xylene	MEK
10/02/98	0.09	15	4110	10200	39700	190
10/09/98	0.09	20	6480	14000	57900	340
10/16/98	0.09	32	4610	12500	49400	337
10/23/98	0.09	20	2430	8980	33700	203
10/30/98	0.09	65	5920	10000	49400	360
11/04/98	0.09	10	2800	7700	33300	170
11/11/98	0.09	18	4790	9810	49100	320
11/18/98	0.09	34	4630	10100	52000	360
11/24/98	0.09	19	4980	10400	54300	430
12/04/98	0.10	25	4760	9520	47100	460
12/14/98	0.10	23	4890	9590	47500	630
04/01/99	0.10	17	6690	30600	115000	690
04/15/99	0.10	10	2060	15000	39800	270
04/22/99	0.10	10	5880	29600	109000	410
04/27/99	0.10	8	2620	16200	40200	220
05/06/99	0.10	18	4230	29500	107000	390
05/12/99	0.10	15	4960	8790	32200	77
05/25/99	0.10	14	4200	9100	30800	301
06/03/99	0.10	13	3780	8600	29990	501
06/11/99	0.10	27	4070	9360	32100	520
06/18/99	0.10	12	3640	8510	29800	460
06/30/99	0.10	20	3500	8230	29000	420
07/08/99	0.10	20	3330	8560	31100	340
07/12/99	0.10	0	2700	7170	26300	230
07/23/99	0.10	22	3410	8300	36500	240
07/28/99	0.10	19	3470	3530	31100	220
08/06/99	0.10	11	2690	7270	29000	190
08/11/99	0.10	13	203	4390	15700	72
08/20/99	0.10	8	2720	4410	17900	61
08/27/99	0.10	14	1820	7300	29400	58
09/01/99	0.10	10	2045	3280	11730	40
09/09/99	0.10	17	3130	4380	19100	69
09/11/99	0.10	13	3490	4500	18800	67
09/16/99	0.10	10	1370	7780	24300	53
09/23/99	0.10	45	1950	5890	27200	78
10/07/99	0.10	24	610	2120	12200	29
10/15/99	0.10	28	2060	6260	23400	72
10/21/99	0.00	7	1570	6230	19600	61
10/28/99	0.10	5	650	2640	9960	21
11/05/99	0.00	5	820	2820	11400	28
11/12/99	0.10	0	1750	4990	29030	59
11/18/99	0.05	11	1020	3980	14100	40
08/14/00	0.09	13	4830	6640	21800	65
09/06/00	0.09	9	2210	5420	24100	94
09/14/00	0.09	19	4520	5160	22500	120
09/21/00	0.09	9	2270	6490	21800	68
09/27/00	0.09	19	6050	10800	30800	30
10/12/00	0.09	0	1670	5560	20500	0
10/13/00	0.09	6	2010	5430	14400	320

TABLE 1

COMPLETE VOGEL SITE WTP INFLUENT DATA SUMMARY in ppb

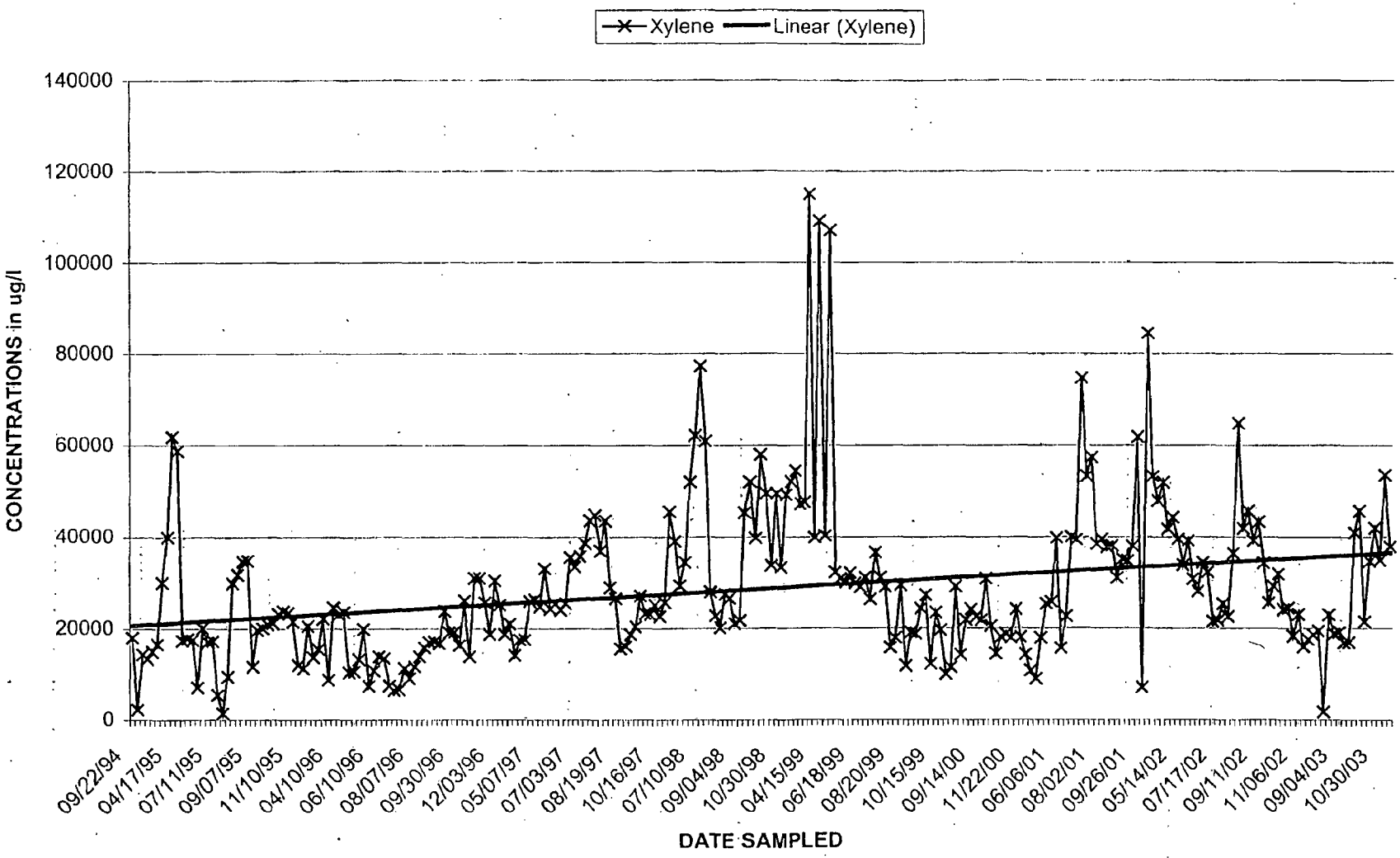
Date	Flow mgd	Benzene	Toluene	E. Benzene	Xylene	MEK
10/18/00	0.09	9	1910	5050	18100	240
10/26/00	0.09	15	1898	5160	18740	223
11/01/00	0.09	7	1780	4970	17900	210
11/22/00	0.09	8	1810	5140	24100	190
04/10/01	0.09	7	1790	5010	18000	240
04/18/01	0.09	4	1020	3960	14200	91
05/02/01	0.09	5	810	2840	10700	110
05/09/01	0.09	7	680	2680	9020	180
05/16/01	0.09	5	1160	4290	17900	189
05/24/01	0.09	21	2360	6000	25300	44
05/29/01	0.09	9	1850	6390	25700	87
06/06/01	0.09	0	3060	9320	39700	199
06/13/01	0.09	15	1800	4140	15620	308
06/21/01	0.09	0	2360	5600	22600	0
06/27/01	0.09	19	2940	10300	40000	0
07/02/01	0.09	0	3000	10100	39300	0
07/11/01	0.09	21	3130	17900	74600	0
07/19/01	0.09	9	2340	12900	53100	0
07/25/01	0.09	13	2000	14400	57300	0
08/02/01	0.09	0	2090	10100	38400	0
08/09/01	0.09	0	2210	10200	39500	0
08/16/01	0.09	0	2098	9670	37700	0
08/23/01	0.09	25	2450	10300	38000	0
08/29/01	0.09	0	2472	9120	31000	0
09/05/01	0.09	89	2520	9750	35100	0
09/12/01	0.09	0	2160	9560	34700	0
09/20/01	0.09	27	2390	10300	37900	0
09/26/01	0.09	11	4540	1570	61700	0
10/04/01	0.09	210	670	2180	7060	0
10/11/01	0.09	140	1120	29300	84400	0
10/18/01	0.09	150	3110	13900	53100	0
10/24/01	0.09	170	2880	11900	47800	0
10/30/01	0.09	0	2960	13400	51800	0
11/08/01	0.09	0	2270	10000	41700	0
11/14/01	0.09	0	2430	10600	44200	0
05/14/02	0.054	0	1950	9280	39500	0
05/22/02	0.054	0	1780	7970	33800	0
05/31/02	0.069	17	2020	10100	39100	0
06/04/02	0.069	0	1540	7760	30700	0
06/13/02	0.067	11	1440	6890	28000	0
06/19/02	0.066	0	1720	8320	34300	0
06/26/02	0.069	20	1660	7870	32200	0
07/10/02	0.071	0	1130	5440	21500	0
07/17/02	0.073	0	1220	5630	21700	0
07/24/02	0.068	48	1760	6360	25300	0
07/31/02	0.074	8	1380	5670	22500	0
08/07/02	0.071	26	1997	9180	36300	0
08/15/02	0.065	11	3670	16200	64600	0
08/22/02	0.075	17	2280	10800	41800	0

TABLE 1

COMPLETE VOGEL SITE WTP INFLUENT DATA SUMMARY in ppb

Date	Flow mgd	Benzene	Toluene	E. Benzene	Xylene	MEK
08/28/02	0.076	15	2510	11500	45600	0
09/05/02	0.068	0	2200	10100	39100	0
09/11/02	0.069	17	2600	10800	43300	0
09/19/02	0.070	11	2410	8660	34200	0
09/25/02	0.072	6	2180	7140	25500	0
10/03/02	0.070	0	1990	7320	29100	0
10/09/02	0.069	0	2130	7850	31800	0
10/18/02	0.066	0	1670	5980	24000	0
10/24/02	0.061	0	1750	6040	24400	0
10/31/02	0.064	0	1180	4360	18300	0
11/06/02	0.067	0	1640	5880	23000	0
11/14/02	0.067	15	1220	3920	15900	0
11/20/02	0.06	0	1230	3990	17500	0
08/01/03	0.112	0	350	4720	18500	0
08/07/03	0.112	62	910	4970	19400	0
08/14/03	0.112	71	4480	4480	1770	0
08/22/03	0.112	0	1000	5960	22900	0
08/29/03	0.112	37	1796	5090	18700	0
09/04/03	0.112	0	970	5150	19100	0
09/12/03	0.112	0	630	4430	16800	0
09/19/03	0.112	0	712	4550	16900	0
09/26/03	0.112	83	1880	10500	40900	0
10/03/03	0.112	6	2230	11900	45600	0
10/07/03	0.112	5	1090	5560	21400	0
10/15/03	0.112	0	1770	8880	34600	0
10/24/03	0.112	0	2370	10200	41900	0
10/30/03	0.112	0	1930	8470	34800	0
11/06/03	0.112	0	2520	12600	53400	0
11/13/03	0.112	13	1800	8880	37800	0
04/16/04	0.040	0	1480	11300	49300	0
04/22/04	0.130	0	713	5680	23400	0
04/30/04	0.130	0	1370	7400	29300	0
05/04/04	0.130	0	1590	8660	36100	0
05/12/04	0.130	0	2600	15100	61500	0
05/19/04	0.130	0	1940	10000	41300	0
05/25/04	0.130	0	2270	8890	36400	0
06/03/04	0.130	0	1490	7380	28500	0
06/09/04	0.130	38	1100	68	26000	0
06/22/04	0.160	0	755	5890	22400	0
07/02/04	0.194	0	1380	6640	24700	0
Total	0.092					
Average	0.092	17	2390	8405	33292	95
Max.	0.194	210	6690	30600	115000	690
Min.	0.000	0	203	68	1770	0

Influent


Xylene
Linear (Xylene)
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CONCENTRATIONS in ug/l
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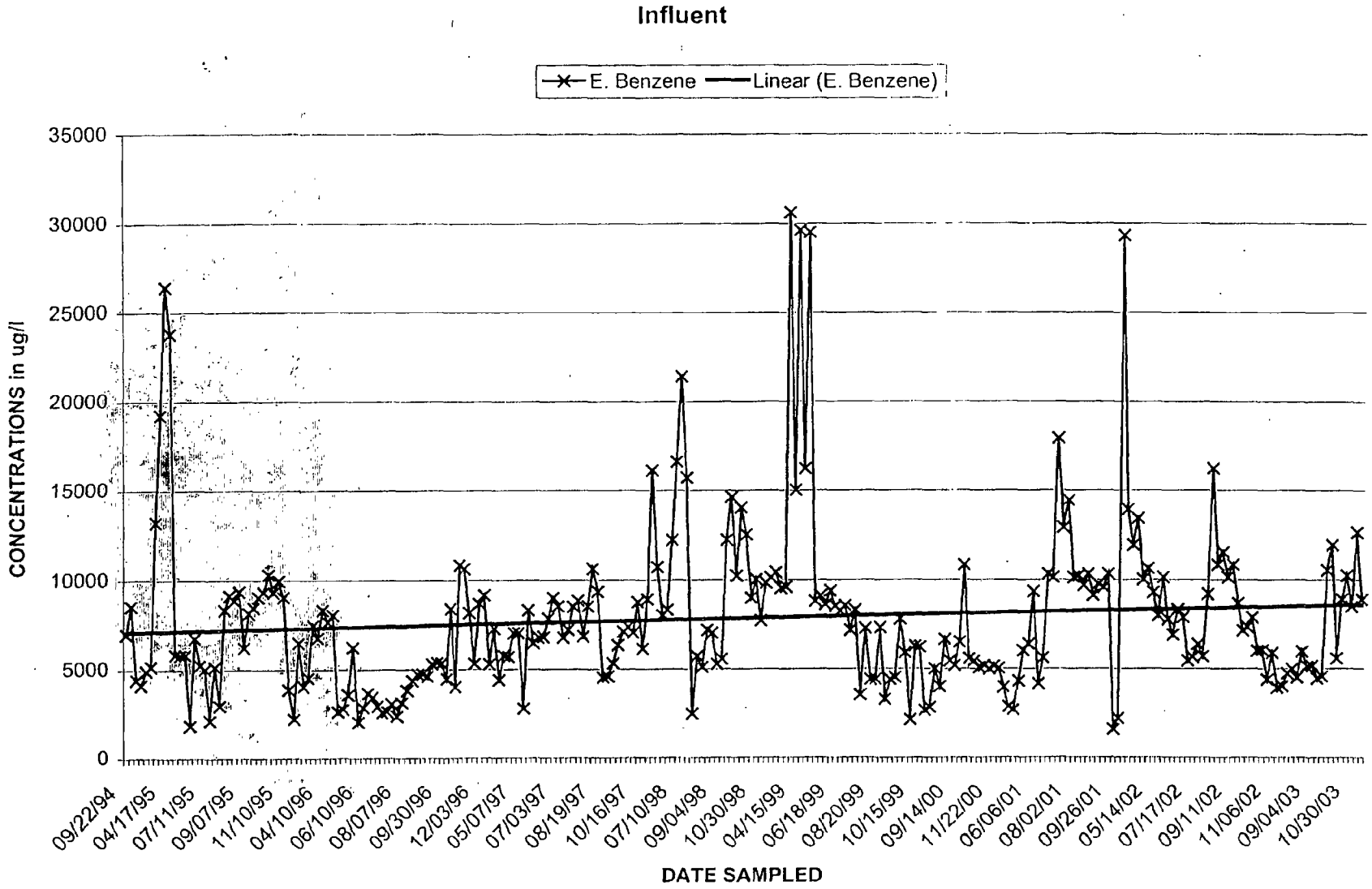
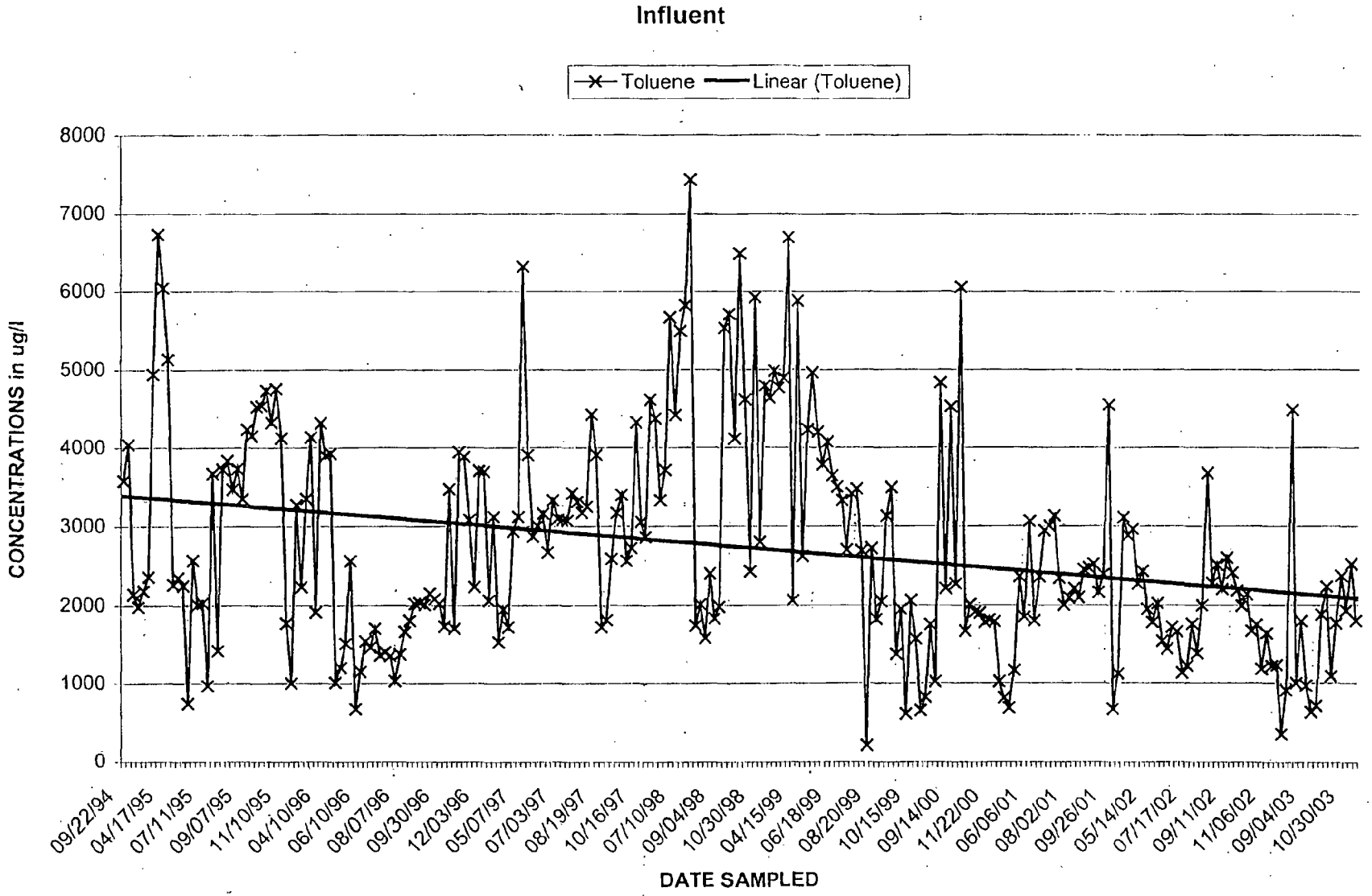
10/15/99
09/14/00
11/22/00
06/06/01
08/02/01
09/26/01
05/14/02
07/17/02
09/11/02
11/06/02
09/04/03
10/30/03
DATE SAMPLED


Influent
E. Benzene
Linear (E. Benzene)
CONCENTRATIONS in ug/l
35000
30000
25000
20000
15000
10000
5000
0
09/22/94
04/17/95
07/11/95
09/07/95
11/10/95
04/10/96
06/10/96
08/07/96
09/30/96
12/03/96
05/07/97
07/03/97
08/19/97
10/16/97
07/10/98
09/04/98
10/30/98
04/15/99
06/18/99
08/20/99
10/15/99
09/14/00
11/22/00
06/06/01
08/02/01
09/26/01
05/14/02
07/17/02
09/11/02
11/06/02
09/04/03
10/30/03
DATE SAMPLED


Influent
Toluene
Linear (Toluene)
CONCENTRATIONS in ug/l
8000
7000
6000
5000
4000
3000
2000
1000
0
09/22/94
04/17/95
07/11/95
09/07/95
11/10/95
04/10/96
06/10/96
08/07/96
09/30/96
12/03/96
05/07/97
07/03/97
08/19/97
10/16/97
07/10/98
09/04/98
10/30/98
04/15/99
06/18/99
08/20/99
10/15/99
09/14/00
11/22/00
06/06/01
08/02/01
09/26/01
05/14/02
07/17/02
09/11/02
11/06/02
09/04/03
10/30/03
DATE SAMPLED

Influent Data

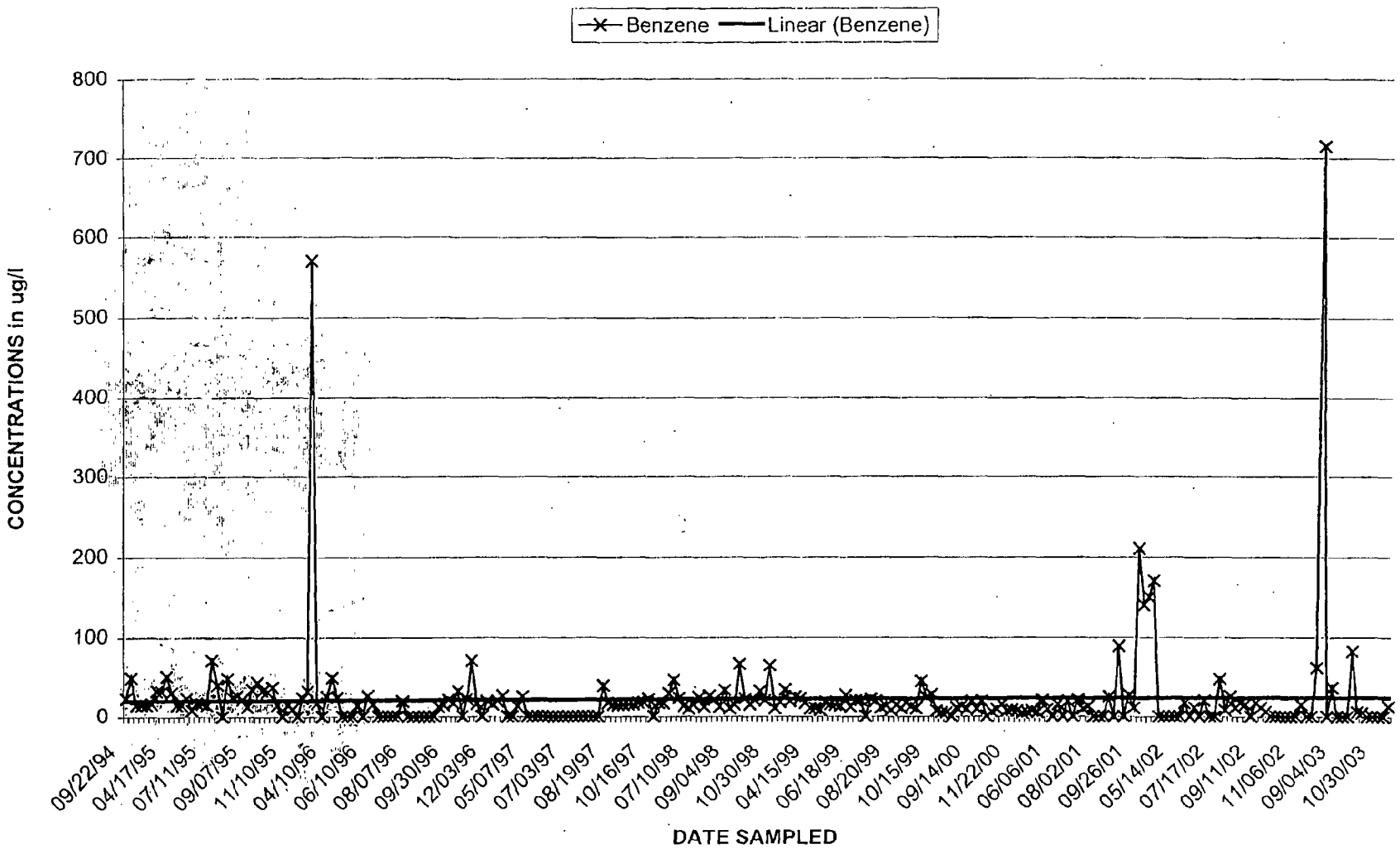


		TABLE 2				
	COMPLETE VOGEL SITE WTP EFFLUENT DATA SUMMARY in ppb					
Date	Flow mgd	Benzene	E. Benzene	Toluene	Xylene	MEK
10/02/98	0.090	0.00	0.00	0.00	0.00	10.00
10/09/98	0.090	0.00	0.00	0.00	0.00	0.00
10/16/98	0.090	0.00	0.00	0.00	0.00	7.00
10/23/98	0.090	0.00	17.00	0.00	110.00	10.00
10/30/98	0.100	0.00	0.00	0.00	0.00	14.00
11/04/98	0.100	0.00	0.00	0.00	0.00	20.00
11/11/98	0.100	0.00	0.00	0.00	7.00	33.00
11/18/98	0.100	0.00	0.00	0.00	0.00	16.00
11/24/98	0.100	0.00	0.00	0.00	6.00	21.00
12/04/98	0.100	0.00	0.00	0.00	0.00	12.00
12/14/98	0.100	0.00	0.00	0.00	7.00	12.00
04/01/99	0.100	0.00	0.00	0.00	0.00	0.00
04/15/99	0.100	0.00	10.00	5.00	42.00	0.00
04/22/99	0.100	0.00	0.00	0.00	0.00	0.00
04/27/99	0.100	0.00	15.00	6.00	63.00	12.00
05/06/99	0.100	0.00	15.00	6.00	58.00	8.00
05/12/99	0.100	0.00	0.00	0.00	0.00	6.00
05/25/99	0.100	0.00	28.00	12.00	120.00	5.00
06/03/99	0.100	0.00	0.00	0.00	0.00	0.00
06/11/99	0.100	0.00	0.00	0.00	0.00	0.00
06/18/99	0.100	0.00	0.00	0.00	0.00	0.00
06/30/99	0.100	0.00	0.00	0.00	0.00	0.00
07/08/99	0.100	0.00	0.00	0.00	0.00	0.00
07/12/99	0.100	0.00	0.00	0.00	0.00	0.00
07/12/99	0.100	0.00	0.00	0.00	0.00	0.00
07/23/99	0.100	0.00	0.00	3.00	0.00	0.00
07/28/99	0.100	0.00	0.00	0.00	0.00	0.00
08/06/99	0.100	0.00	0.00	0.00	0.00	0.00
08/11/99	0.100	0.00	0.00	0.00	0.00	0.00
08/20/99	0.100	0.00	0.00	0.00	0.00	0.00
08/27/99	0.100	0.00	4.00	2.00	13.00	5.00
09/01/99	0.100	0.00	0.00	0.00	7.00	5.00
09/09/99	0.100	0.00	3.00	0.00	15.00	8.00
09/11/99	0.000	0.00	2.00	0.00	11.00	14.00
09/16/99	0.100	0.00	0.00	0.00	0.00	0.00
09/23/99	0.000	0.00	0.00	0.00	20.00	7.00
10/07/99	0.100	0.00	0.00	0.00	8.00	8.00
10/15/99	0.050	0.00	0.00	0.00	0.00	0.00
10/21/99	0.090	0.00	0.00	0.00	7.00	12.00
10/28/99	0.090	0.00	0.00	0.00	9.00	16.00
11/05/99	0.090	0.00	2.00	0.00	8.00	15.00
11/12/99	0.090	0.00	3.00	0.00	7.00	14.00
11/18/99	0.090	0.00	2.00	7.00	11.00	15.00
08/14/00	0.090	0.00	0.00	0.00	5.00	0.00
09/06/00	0.090	0.00	0.00	0.00	0.00	5.00
09/14/00	0.090	0.00	0.00	0.00	0.00	5.00
09/21/00	0.090	0.00	0.00	0.00	0.00	9.00
09/27/00	0.090	0.00	0.00	0.00	0.00	6.00
10/13/00	0.090	0.00	0.00	0.00	0.00	0.00
10/12/00	0.090	0.00	0.00	0.00	0.00	0.00
11/01/00	0.090	0.00	0.00	5.00	19.00	0.00
10/26/00	0.090	0.00	0.00	0.00	0.00	0.00

Date	Flow mgd	Benzene	E. Benzene	Toluene	Xylene	MEK
10/18/00	0.090	0.00	0.00	0.00	0.00	5.00
11/22/00	0.090	0.00	0.00	0.00	0.00	24.00
04/10/01	0.090	0.00	0.00	0.00	0.00	0.00
04/18/01	0.090	0.00	0.00	0.00	0.00	0.00
05/02/01	0.090	0.00	0.00	0.00	0.00	0.00
05/09/01	0.090	0.00	0.00	0.00	0.00	0.00
05/16/01	0.090	0.00	0.00	0.00	0.00	0.00
05/24/01	0.090	0.00	0.00	0.00	0.00	0.00
05/29/01	0.090	0.00	0.00	0.00	0.00	0.00
06/06/01	0.090	0.00	0.00	5.00	0.00	0.00
06/13/01	0.090	0.00	0.00	0.00	0.00	0.00
06/21/01	0.090	0.00	0.00	0.00	0.00	0.00
06/27/01	0.090	0.00	0.00	0.00	0.00	0.00
07/02/01	0.090	0.00	0.00	0.00	0.00	0.00
07/11/01	0.090	0.00	0.00	0.00	0.00	0.00
07/19/01	0.090	0.00	0.00	0.00	0.00	0.00
07/25/01	0.090	0.00	0.00	0.00	0.00	0.00
08/02/01	0.090	0.00	0.00	0.00	0.00	0.00
08/09/01	0.090	0.00	0.00	0.00	0.00	0.00
08/16/01	0.090	0.00	0.00	0.00	0.00	0.00
08/23/01	0.086	0.00	0.00	0.00	0.00	0.00
08/29/01	0.086	0.00	0.00	0.00	0.00	0.00
09/05/01	0.086	0.00	0.00	0.00	0.00	0.00
09/12/01	0.086	0.00	0.00	0.00	0.00	0.00
09/20/01	0.086	0.00	0.00	0.00	0.00	0.00
09/26/01	0.090	0.00	0.00	3.00	14.00	0.00
10/04/01	0.090	0.00	0.00	0.00	0.00	0.00
10/11/01	0.090	0.00	0.00	0.00	8.00	0.00
10/18/01	0.090	0.00	11.00	18.00	0.00	0.00
10/24/01	0.090	0.00	0.00	21.00	29.00	37.00
10/30/31	0.090	0.00	0.00	21.00	28.00	48.00
11/08/01	0.090	0.00	46.00	29.00	127.00	0.00
11/14/01	0.090	0.00	0.00	31.00	0.00	0.00
05/14/02	0.054	0.00	0.00	0.00	0.00	0.00
05/22/02	0.054	0.00	0.00	0.00	0.00	0.00
05/31/02	0.069	0.00	0.00	5.00	19.00	0.00
06/04/02	0.069	0.00	0.00	0.00	0.00	0.00
06/13/02	0.067	0.00	0.00	0.00	0.00	5.00
06/19/02	0.066	0.00	0.00	0.00	0.00	24.00
06/26/02	0.069	0.00	0.00	0.00	0.00	0.00
07/10/02	0.071	0.00	0.00	0.00	0.00	0.00
07/17/02	0.073	0.00	0.00	0.00	0.00	0.00
07/24/02	0.068	0.00	49.00	12.00	172.00	0.00
07/31/02	0.074	0.00	0.00	0.00	0.00	0.00
08/07/02	0.071	0.00	0.00	0.00	0.00	0.00
08/15/02	0.065	0.00	0.00	0.00	0.00	0.00
08/22/02	0.075	0.00	0.00	5.00	0.00	0.00
08/28/02	0.076	0.00	0.00	0.00	0.00	0.00
09/05/02	0.068	0.00	0.00	0.00	0.00	0.00
09/11/02	0.069	0.00	0.00	0.00	0.00	0.00
09/19/02	0.070	0.00	0.00	0.00	0.00	0.00
09/25/02	0.072	0.00	0.00	0.00	0.00	0.00

Date	Flow mgd	Benzene	E. Benzene	Toluene	Xylene	MEK
10/03/02	0.070	0.00	0.00	0.00	0.00	0.00
10/09/02	0.069	0.00	0.00	0.00	0.00	0.00
10/18/02	0.066	0.00	0.00	0.00	0.00	0.00
10/24/02	0.061	0.00	0.00	0.00	0.00	0.00
10/31/02	0.064	0.00	0.00	0.00	0.00	0.00
11/06/02	0.067	0.00	0.00	3.00	14.00	0.00
11/14/02	0.067	0.00	0.00	0.00	0.00	0.00
11/20/02	0.064	0.00	0.00	0.00	0.00	0.00
08/01/03	0.112	0.00	0.00	0.00	6.00	0.00
08/07/03	0.112	0.00	0.00	0.00	0.00	0.00
08/14/03	0.112	0.00	0.00	0.00	0.00	0.00
08/22/03	0.112	0.00	0.00	0.00	0.00	0.00
08/29/03	0.112	0.00	0.00	0.00	0.00	0.00
09/04/03	0.112	0.00	0.00	0.00	0.00	0.00
09/12/03	0.112	0.00	0.00	0.00	0.00	0.00
09/19/03	0.112	0.00	0.00	0.00	0.00	0.00
09/26/03	0.112	0.00	0.00	0.00	34.00	0.00
10/03/03	0.112	**9.00**	0.00	6.00	37.00	0.00
10/07/03	0.112	0.00	0.00	0.00	0.00	0.00
10/15/03	0.112	0.00	0.00	0.00	0.00	0.00
10/24/03	0.112	0.00	0.00	0.00	0.00	0.00
10/30/03	0.112	0.00	0.00	0.00	0.00	0.00
11/06/03	0.112	0.00	0.00	0.00	0.00	0.00
11/13/03	0.112	0.00	0.00	0.00	0.00	0.00
04/16/04	0.040	0.00	5.00	0.00	38.00	0.00
04/22/04	0.130	0.00	0.00	0.00	6.00	0.00
04/30/04	0.130	0.00	3.00	0.00	17.00	0.00
05/04/04	0.130	0.00	2.00	0.00	9.00	0.00
05/12/04	0.130	0.00	5.00	0.00	31.00	0.00
05/19/04	0.130	0.00	0.00	0.00	5.00	0.00
05/25/04	0.130	0.00	6.00	0.00	35.00	0.00
06/03/04	0.130	0.00	0.00	0.00	25.00	0.00
06/09/04	0.130	0.00	0.00	0.00	0.00	0.00
06/22/04	0.160	0.00	0.00	0.00	5.00	0.00
07/02/04	0.194	0.00	11.00	0.00	96.00	0.00
Total	12.774	9.00	239.00	205.00	1308.00	0.00
Average	0.092	0.06	1.72	1.47	9.41	3.40
Max.	0.194	9.00	49.00	31.00	172.00	48.00
Min.	0.000	0.000	0.000	0.000	0.000	0.000
Effl. Standard		5.00	25.00	10.00	100.00	No Limit
BOLD Values = Standard Exceedence						

ATTACHMENT "D"

Compilation of Free Product Recovery

At the Vogel Paint & Wax Company

From February 1992

Through June 2004

TABLE 5		
VOGEL PAINT AND WAX COMPANY		
SUMMARY OF FREE PRODUCT RECOVERY		
	revised 7-19-04	
Date Transferred	RW-102 (gallons)	RW-103 (gallons)
02/04/1992	190	0
02/10/1992	180	0
02/14/1992	150	0
02/21/1992	160	0
02/27/1992	110	0
02/28/1992	105	0
03/10/1992	250	0
03/23/1992	300	0
04/02/1992	200	0
04/15/1992	300	0
04/27/1992	200	0
05/08/1992	300	0
05/21/1992	300	0
06/04/1992	300	0
06/19/1992	300	0
08/28/1992	250	0
10/05/1992	140	0
06/24/1993		350
06/30/1993	300	0
12/09/1993	350	0
06/10/1994	300	0
06/24/1994	300	0
07/07/1994	450	0
07/19/1994	400	0
08/03/1994	400	0
08/15/1994	400	0
08/29/1994	400	0
09/12/1994	300	0
10/05/1994	400	0
10/18/1994	400	0
11/22/1994	100	0
05/12/1995	300	0
08/09/1995	350	150
10/30/1995	400	400
06/05/1996	300	0
07/10/1996	400	0
09/13/1996	400	200
03/26/1997	400	0
06/03/1997	400	0
07/15/1997	400	0
08/29/1997	400	0
08/25/1998	300	0
10/22/1998	300	0
07/12/1999	250	0
08/28/1999	250	0
10/18/1999	350	0
11/30/2000	0	0
11/15/2001	78	0
11/22/2002	435	0
11/13/2003	10	0
06/30/2004	113	
TOTAL GALLONS:	14,071	1,100
FREE PRODUCT TOTAL		15,171
AQUEAOUS PHASE TOTAL		10,910
GRAND TOTAL		26,081
Estimated free product removed in the aqueous phase by the WTP through June 2004 = 10,910 gallons		

ATTACHMENT "E"

Compilation of

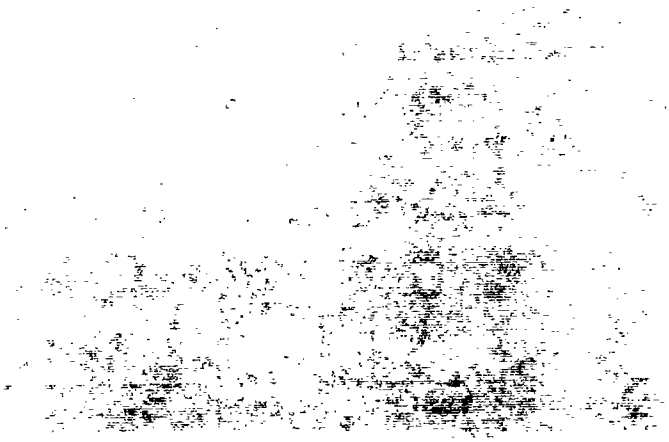
Groundwater Monitoring Data

from the

Vogel Paint & Wax Company Site

From October 1998

Through June 2004



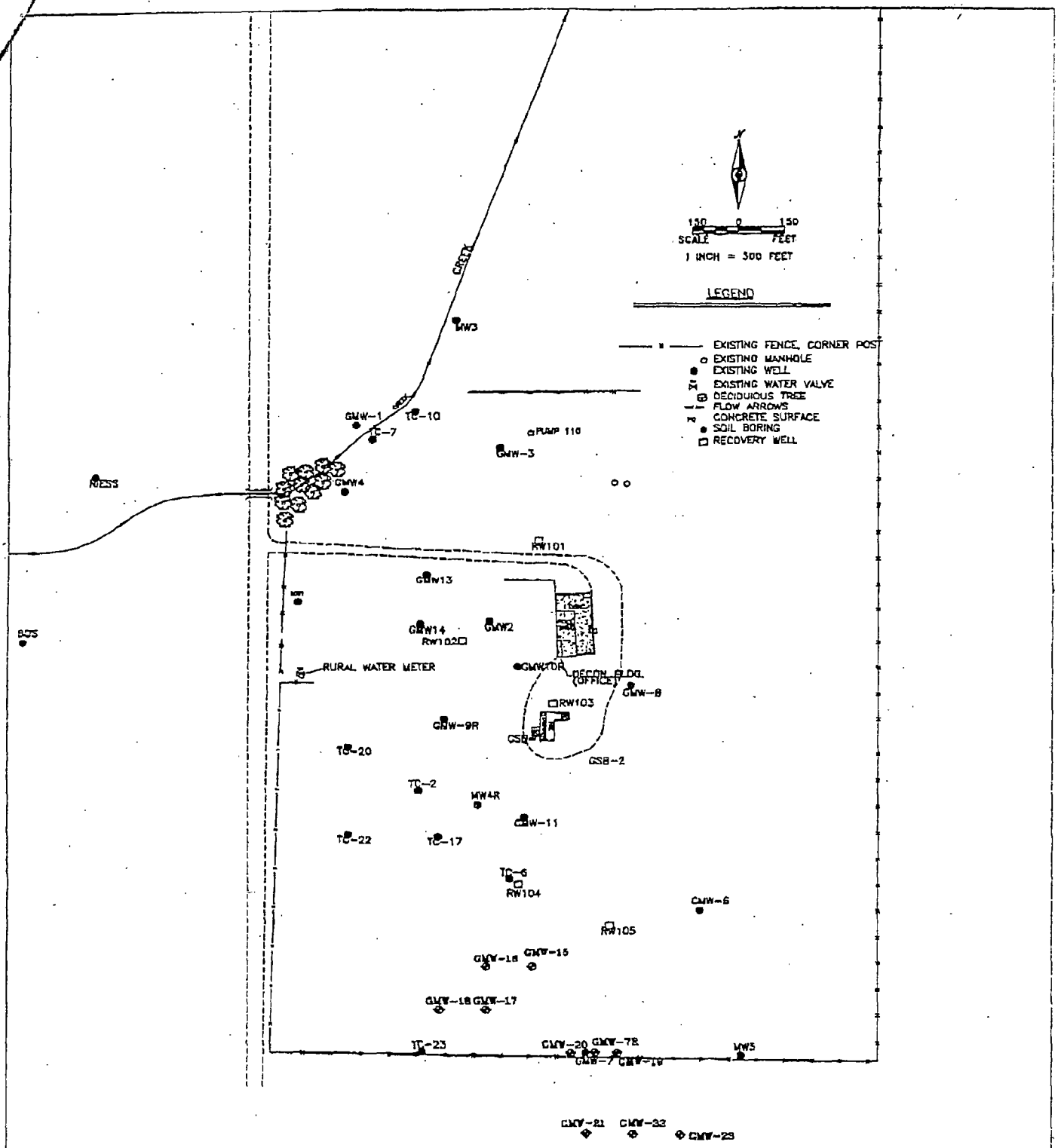


FIGURE 1
SITE MAP
VOGEL PAINT WASTE SITE
MAURICE, IOWA

PROJECT #: 91-400

DRAWN BY: KK CHECKED BY:

GEOTEK ENGINEERING & TESTING SERVICES, INC.

COMPLETE LIST OF GROUNDWATER MONITORING DATA								
QUARTERLY WELL MONITORING DATA FOR VOGEL SITE								
DATE	WELL #	BENZENE	TOLUENE	E-BENZENE	XYLENE	MEK	CH2CL2	1,2-DCP
12/15/98	BOS	<2	<2	<2	<5	<5		
03/26/99	BOS	<2	<2	<2	<5	<5		
06/23/99	BOS	<2	<2	<2	<5	<5		
09/29/99	BOS	<2	<2	<2	<5	<5		
12/23/99	BOS	<2	<2	<2	<5	<5		
03/29/00	BOS	<2	<2	<2	<5	<5		
06/29/00	BOS	<2	<2	<2	<5	<5		
09/21/00	BOS	<2	<2	<2	<5	<5		
01/03/01	BOS	<2	<2	<2	<5	<5		
03/27/01	BOS	<2	<2	<2	<5	<5		
06/29/01	BOS	<2	<2	<2	<5	<5		
10/04/01	BOS	<2	<2	<2	<5	<5		
12/14/01	BOS	<2	<2	<2	<5	<5		
03/29/02	BOS	<2	<2	<2	<5	<5		
06/27/02	BOS	<2	<2	<2	<5	<5		
09/26/02	BOS	<2	<2	<2	<5	<5		
12/11/02	BOS	<2	<2	<2	<5	<5		
03/26/03	BOS	<2	<2	<2	<5	<5	<5	<5
06/12/03	BOS	<2	<2	<2	<5	<5	<5	<5
08/15/03	BOS	<2	<2	<2	<5	<5	<5	<5
12/02/03	BOS	<2	<2	<2	<5	<5	<5	<5
03/24/04	BOS	<2	<2	<2	<5	<5	<5	<5
06/25/04	BOS	<2	<2	<2	<5	<5	<5	<5
12/15/98	NIESS	<2	<2	<2	<5	<5		
03/26/99	NIESS	<2	<2	<2	<5	<5		
06/23/99	NIESS	<2	<2	<2	<5	<5		
09/29/99	NIESS	<2	<2	<2	<5	<5		
12/23/99	NIESS	<2	<2	<2	<5	<5		
03/29/00	NIESS	<2	<2	<2	<5	<5		
06/29/00	NIESS	<2	<2	<2	<5	<5		
09/21/00	NIESS	<2	<2	<2	<5	<5		
01/03/01	NIESS	<2	<2	<2	<5	<5		
03/27/01	NIESS	<2	<2	<2	<5	<5		
06/29/01	NIESS	<2	<2	<2	<5	<5		
10/04/01	NIESS	<2	<2	<2	<5	<5		
12/14/01	NIESS	<2	<2	<2	<5	<5		
03/29/02	NIESS	<2	<2	<2	<5	<5		
06/27/02	NIESS	<2	<2	<2	<5	<5		
09/26/02	NIESS	<2	<2	<2	<5	<5		
12/11/02	NIESS	<2	<2	<2	<5	<5		
03/26/03	NIESS	<2	<2	<2	<5	<5		
06/12/03	NIESS	<2	<2	<2	<5	<5	<5	<5
08/15/03	NIESS	<2	<2	<2	<5	<5	<5	<5
12/02/03	NIESS	<2	<2	<2	<5	<5	<5	<5
03/24/04	NIESS	<2	2	2	<5	<5	<5	<5
06/25/04	NIESS	<2	2	2	<5	<5	<5	<5
03/26/99	GMW-1	<2	<2	<2	<5	<5		

COMPLETE LIST OF GROUNDWATER MONITORING DATA								
QUARTERLY WELL MONITORING DATA FOR VOGEL SITE								
DATE	WELL #	BENZENE	TOLUENE	E-BENZENE	XYLENE	MEK	CH2CL2	1,2-DCP
03/27/01	GMW-2	<2	76	1420	16900	<5		
10/04/01	GMW-2	<20	170	1090	9260	<50		
12/14/01	GMW-2	<20	106	298	3580	<50		
03/29/02	GMW-2	<2	144	920	4990	<50		
06/27/02	GMW-2	<20	114	960	4610	<50		
09/26/02	GMW-2	<20	160	1350	7130	<50		
12/11/02	GMW-2	<20	504	2370	11920	<50		
03/29/00	GMW-3	<2	<2	<2	<5	<5		
06/29/00	GMW-3	<2	<2	<2	<5	<5		
01/03/01	GMW-3	<2	<2	<2	<5	<5		
03/27/01	GMW-3	<2	<2	<2	<5	<5		
06/29/01	GMW-3	<2	<2	<2	<5	<5		
10/04/01	GMW-3	<2	<2	<2	<5	<5		
12/14/01	GMW-3	<2	<2	<2	<5	<5		
03/29/02	GMW-3	<2	<2	<2	<5	<5		
06/27/02	GMW-3	<2	<2	<2	<5	<5		
09/27/02	GMW-3	<2	<2	<2	<5	<5		
12/11/02	GMW-3	<2	<2	<2	<5	<5		
03/08/03	GMW-3	<2	<2	<2	<5	<5	<5	<5
06/12/03	GMW-3	<2	<2	<2	<5	<5	<5	<5
08/15/03	GMW-3	<2	<2	<2	<5	<5	<5	<5
12/02/03	GMW-3	<2	<2	<2	<5	<5	<5	<5
03/24/04	GMW-3	<2	<2	<2	<5	<5	<5	<5
06/25/04	GMW-3	<2	<2	<2	<5	<5	<5	<5
12/15/98	GMW-4	<2	<2	<2	<5	<5		
03/26/99	GMW-4	<2	<2	<2	<5	<5		
06/23/99	GMW-4	<2	<2	<2	<5	<5		
03/29/00	GMW-4	<2	<2	<2	<5	<5		
06/29/00	GMW-4	<2	<2	<2	<5	<5		
07/21/00	GMW-4	<2	<2	<2	<5	<5		
01/03/01	GMW-4	<2	<2	<2	<5	<5		
03/27/01	GMW-4	<2	<2	<2	<5	<5		
06/29/01	GMW-4	<2	<2	<2	<5	<5		
10/04/01	GMW-4	<2	<2	<2	<5	<5		
12/14/01	GMW-4	<2	<2	<2	<5	<5		
03/29/02	GMW-4	<2	<2	<2	<5	<5		
06/27/02	GMW-4	<2	<2	<2	<5	<5		
09/26/02	GMW-4	<2	<2	<2	<5	<5		
12/11/02	GMW-4	<2	<2	<2	<5	<5		
06/12/03	GMW-4	<2	<2	<2	<5	<5	<5	<5
08/15/03	GMW-4	<2	<2	<2	<5	<5	<5	<5
03/26/99	GMW-5	<2	<2	6	9	<5		
06/01/99	**GMW-5**	**removed**						
03/27/01	GMW-6	<2	<2	<2	<5	<5		
08/15/03	GMW-6	<2	<2	<2	<5	<5	<5	<5
06/25/04	GMW-6	<2	<2	<2	<5	<5	<5	<5
03/26/99	GMW-7	<2	<2	<2	<5	<5		
03/29/00	GMW-7	<2	<2	<2	<5	<5		

COMPLETE LIST OF GROUNDWATER MONITORING DATA QUARTERLY WELL MONITORING DATA FOR VOGEL SITE								
DATE	WELL #	BENZENE	TOLUENE	E-BENZENE	XYLENE	MEK	CH2CL2	1,2-DCP
06/29/00	GMW-7	<2	<2	<2	<5	<5		
09/21/00	GMW-7	<2	<2	<2	<5	<5		
01/03/01	GMW-7	<2	<2	<2	<5	<5		
03/27/01	GMW-7	<2	<2	<2	<5	<5		
06/29/01	GMW-7	<2	<2	<2	<5	<5		
10/04/01	GMW-7	<2	<2	<2	<5	<5		
12/14/01	GMW-7	<2	<2	<2	<5	<5		
03/29/02	GMW-7	<2	<2	<2	<5	<5		
06/27/02	GMW-7	<2	<2	<2	<5	<5		
09/26/02	GMW-7	<2	<2	<2	<5	<5		
12/11/02	GMW-7	<2	<2	<2	<5	<5		
03/26/03	GMW-7	<2	<2	<2	<5	<5	<5	<5
06/12/03	GMW-7	<2	<2	<2	<5	<5	<5	<5
07/17/03	REPLACED							
07/24/03	GMW-7R	12	16	5470	15800	<5	<5	<5
07/28/03	GMW-7R	36	58	7770	22400	<50	<50	<50
08/01/03	GMW-7R	<20	<20	5130	14500	<50	<50	<50
08/14/03	GMW-7R	<20	<20	3090	8550	<50	<50	<50
08/29/03	GMW-7R	<2	<2	210	550	<5	<5	<5
09/26/03	GMW-7R	5	<5	2480	5660	<5	<5	<5
10/15/03	GMW-7R	<2	3	3330	5940	<5	<5	<5
11/21/03	GMW-7R	7	33	4660	9360	<5	<5	<5
12/02/03	GMW-7R	<2	21	4410	1740	<5	<5	<5
01/13/04	GMW-7R	<2	160	4880	9920	<5	<5	<5
02/04/04	GMW-7R	5	84	3440	7210	<5	<5	<5
03/24/04	GMW-7R	4	24	2620	6270	<5	<5	<5
04/30/04	GMW-7R	<2	<2	1280	3400	<5	<5	<5
05/27/04	GMW-7R	<2	<2	1430	3780	<5	<5	<5
06/25/04	GMW-7R	<2	<2	1770	4230	<5	<5	<5
07/19/04	GMW-7R	<2	<2	95	204	<5	<5	<5
03/26/03	GMW-8	<2	<2	2	<5	<5	<5	<5
06/12/03	GMW-8	<2	<2	2	<5	<5	<5	<5
08/15/03	GMW-8	<2	<2	2	<5	<5	<5	<5
12/02/03	GMW-8	<2	<2	2	<5	<5	<5	<5
03/24/04	GMW-8	<2	<2	2	<5	<5	<5	<5
06/25/04	GMW-8	<2	<2	2	<5	<5	<5	<5
12/15/98	GMW-9	<2	27	450	1310	<5		
03/26/99	GMW-9	<2	10	110	480	<5		
06/23/99	GMW-9	<2	8	180	620	<5		
09/29/99	GMW-9	<2	10	120	590	<5		
12/23/99	GMW-9	<2	16	119	440	<5		
03/29/00	GMW-9	<2	10	83	350	<5		
06/29/00	GMW-9	<2	9	160	400	<5		
06/29/00	GMW-9	<2	230	520	1740	<5		
12/01/00	**GMW-9**	REMOVED						
09/25/01	**GMW-9**	REPLACED						
03/29/02	GMW-9R	<20	14300	23400	80400	<50		
06/27/02	GMW-9R	<20	4710	12500	48900	<50		
09/26/02	GMW-9R	84	8670	13100	50500	<50		
12/11/02	GMW-9R	48	32200	33440	115000	<5		
03/26/03	GMW-9R	<20	7400	16100	53600	<5	<5	<5
06/12/03	GMW-9R	<20	5610	12700	44700	<50	<50	<50

COMPLETE LIST OF GROUNDWATER MONITORING DATA								
QUARTERLY WELL MONITORING DATA FOR VOGEL SITE								
DATE	WELL #	BENZENE	TOLUENE	E-BENZENE	XYLENE	MEK	CH2CL2	1,2-DCP
08/15/03	GMW-9R	5	3100	3200	24700	<50	<50	<50
12/02/03	GMW-9R	<20	4540	10900	24100	<50	<50	<50
03/24/04	GMW-9R	11	3750	10100	23100	5	5.00	5.00
06/25/04	GMW-9R	<20	7420	15200	54300	<50	<50	<50
12/15/98	GMW-10	31	2200	7070	37800	56		
03/26/99	GMW-10	26	2010	5320	23600	45		
06/23/99	GMW-10	<2	28	190	540	<5		
09/29/99	GMW-10	<2	<2	2	12	<5		
03/29/00	GMW-10	<5	6	210	320	<5		
06/29/00	GMW-10	<2	<2	53	39	<5		
07/21/00	GMW-10	2	250	540	2570	16		
12/01/00	**REMOVED**							
09/25/01	**REPLACED**							
03/29/02	GMW-10	<20	230	7940	29900	<50		
06/27/02	GMW-10	<20	565	7030	29900	<50		
09/26/02	GMW-10	7	630	8720	30100	<50		
12/11/02	GMW-10	<2	336	10520	42600	<5		
06/15/03	GMW-10	<20	460	4780	20000	<50	<50	<50
12/15/98	GMW-11	9	1339	3329	14500	36		
03/26/99	GMW-11	<2	2	3	21	<5		
06/23/99	GMW-11	<2	<2	9	44	<5		
09/29/99	GMW-11	<2	<2	<2	17	<5		
12/23/99	GMW-11	<2	<2	<2	15	<5		
07/21/00	GMW-11	3	650	770	4940	8		
01/03/01	GMW-11	6	710	990	6140	<5		
06/29/01	GMW-11	<2	195	480	1870	<5		
10/04/01	GMW-11	<2	65	170	720	<5		
12/14/01	GMW-11	9	210	480	2090	<5		
03/29/02	GMW-11	<2	<2	23	55	<5		
06/27/02	GMW-11	<2	104	736	3191	<5		
09/26/02	GMW-11	<2	<2	13	33	<5		
12/11/02	GMW-11	<2	190	391	1607	<5		
03/26/03	GMW-11	<2	334	762	3270	<5	<5	<5
06/12/03	GMW-11	<20	212	337	1380	<50	<50	<50
08/15/03	GMW-11	<2	18	33	129	<5	<5	<5
03/26/99	GMW-12	<2	<2	2	7	<5		
07/21/00	GMW-12	<2	<2	7	19	<5		
removed	12/20/2002							

COMPLETE LIST OF GROUNDWATER MONITORING DATA								
QUARTERLY WELL MONITORING DATA FOR VOGEL SITE								
DATE	WELL #	BENZENE	TOLUENE	E-BENZENE	XYLENE	MEK	CH2CL2	1,2-DCP
09/29/01	INSTALLED							
03/29/02	GMW-13	115	4220	24900	93200	<5		
06/27/02	GMW-13	<20	4700	16900	63600	<50		
09/26/02	GMW-13	14	6800	22800	78800	<50		
12/11/02	GMW-13	16	11600	25300	96000	<5		
03/26/03	GMW-13	<20	10100	24600	73500	<50	<50	<50
06/12/03	GMW-13	<20	6150	23100	90400	<50	<50	<50
08/15/03	GMW-13	10	5410	17300	69400	<50	<50	<50
12/02/03	GMW-13	<20	10500	23500	87200	<50	<50	<50
03/24/04	GMW-13	<20	4760	15500	77100	<50	<50	<50
06/25/04	GMW-13	<20	6650	24400	100000	<50	<50	<50
09/29/01	INSTALLED							
03/29/02	GMW-14	93	28000	26400	84100	<50		
06/27/02	GMW-14	23	22500	21000	66100	<50		
09/26/02	GMW-14	48	25100	18600	6500	<50		
12/11/02	GMW-14	64	30500	26000	101000	<5		
03/26/03	GMW-14	59	27900	27800	75400	<50	<50	<50
06/12/03	GMW-14	<20	26000	24200	75100	<50	<50	<50
08/15/03	GMW-14	53	20600	19100	64200	<50	<50	<50
	GMW-15							
07/18/03	TW-2	2	30	1350	1690	<5		
07/28/03	TW-2	<20	48	2190	3250	<50		
08/01/03	TW-2	<20	<20	5130	14500	<50		
08/14/03	TW-2	<2	50	566	1400	<5	<5	<5
09/29/03	GMW-15	<2	<2	640	1980	<5	<5	<5
12/02/03	GMW-15	<2	11	1970	4580	<5	<5	<5
01/13/04	GMW-15	<2	24	2340	4440	<5	<5	<5
03/24/04	GMW-15	3	20	2020	4800	5	5	5
06/25/04	GMW-15	<2	<2	294	673	5	5	5
	GMW-16							
07/18/03	TW-1	6	1110	5400	12700	<5		
07/28/03	TW-1	<20	155	2600	8360	<50		
08/01/03	TW-1	<20	322	3670	12600	<50		
08/14/03	TW-1	2	25	334	883	<5	<5	<5
09/29/03	GMW-16	<2	56	189	715	<5	<5	<5
12/02/03	GMW-16	<2	<2	159	470	<5	<5	<5
01/13/04	GMW-16	<2	<2	142	324	<5	<5	<5
03/24/04	GMW-16	<2	<2	635	2220	<5	<5	<5
06/25/04	GMW-16	<2	<2	113	399	<5	<5	<5
07/28/03	TW-3	29	3310	15400	58800	<50	<50	<50
08/01/03	TW-3	<20	400	1700	7480	<50	<50	<50
08/14/03	TW-3	<20	206	1140	4480	<50	<50	<50
09/29/03	GMW-17	<2	32	42	202	<5	<5	<5
12/02/03	GMW-17	<2	<2	6	20	<5	<5	<5
03/24/04	GMW-17	<2	<2	2	10	<5	<5	<5
06/25/04	GMW-17	<2	<2	19	425	<5	<5	<5

COMPLETE LIST OF GROUNDWATER MONITORING DATA								
QUARTERLY WELL MONITORING DATA FOR VOGEL SITE								
DATE	WELL #	BENZENE	TOLUENE	E-BENZENE	XYLENE	MEK	CH2CL2	1,2-DCP
08/15/03	TW-6	<2	21	109	341	<5	<5	<5
09/29/03	GMW-18	<2	<2	120	229	<5	<5	<5
12/02/03	GMW-18	<2	14	188	522	<5	<5	<5
03/24/04	GMW-18	<2	9	150	367	<5	<5	<5
06/25/04	GMW-18	<2	23	220	594	<5	<5	<5
08/15/03	TW-4	<2	<2	8	21	<5	<5	<5
09/29/03	GMW-19	<2	<2	<2	<5	<5	<5	<5
10/15/03	GMW-19	<2	<2	<2	<5	<5	<5	<5
11/21/03	GMW-19	<2	<2	<2	<5	<5	<5	<5
12/02/03	GMW-19	<2	<2	<2	<5	<5	<5	<5
01/13/04	GMW-19	<2	<2	<2	<5	<5	<5	<5
02/04/04	GMW-19	<2	<2	<2	<5	<5	<5	<5
03/24/04	GMW-19	<2	<2	104	120	<5	<5	<5
04/30/04	GMW-19	<2	<2	<2	7	<5	<5	<5
05/27/04	GMW-19	<2	<2	<2	<5	<5	<5	<5
06/25/04	GMW-19	<2	<2	240	397	<5	<5	<5
07/19/04	GMW-19	<2	<2	121	140	<5	<5	<5
08/15/03	TW-5	<20	<20	1020	2990	<50	<50	<50
09/29/03	GMW-20	<2	<2	66	176	<5	<5	<5
10/15/03	GMW-20	<2	<2	420	1530	<5	<5	<5
11/21/03	GMW-20	<2	7	1320	4640	<5	<5	<5
12/02/03	GMW-20	<2	<2	743.00	2520.00	<5	<5	<5
01/13/04	GMW-20	<2	<2	560	2060	<5	<5	<5
02/04/04	GMW-20	<2	<2	2	10	<5	<5	<5
03/24/04	GMW-20	<2	<2	134	483	<5	<5	<5
04/30/04	GMW-20	<2	<2	<2	<5	<5	<5	<5
05/27/04	GMW-20	<2	<2	447	1280	<5	<5	<5
06/25/04	GMW-20	<2	<2	18	41	<5	<5	<5
07/19/04	GMW-20	<2	<2	250	794	<5	<5	<5
	GMW-21							
04/05/04	GMW-21	<2	<2	4580	10800			
04/07/04	GMW-21	8	13	5300	12200	<5	<5	<5
04/30/04	GMW-21	<2	<2	1070	2940	<5	<5	<5
05/27/04	GMW-21	<2	<2	2460	6740	<5	<5	<5
06/25/04	GMW-21	<2	<2	2510	6860	<5	<5	<5
07/19/04	GMW-21	<2	<2	2890	9410	<5	<5	<5
	GMW-22							
04/05/04	GMW-22	<2	<2	3270	6220	<5	<5	<5
04/07/04	GMW-22	5	<2	2230	4710	<5	<5	<5
04/30/04	GMW-22	<2	<2	<2	5	<5	<5	<5
05/27/04	GMW-22	<2	<2	1410	2440	<5	<5	<5
06/25/04	GMW-22	<2	<2	3470	5400	<5	<5	<5
07/19/04	GMW-22	<2	<2	2910	3890	<5	<5	<5
	GMW-23							
04/05/04	GMW-23	<2	<2	26.00	67.00	<5	<5	<5
04/07/04	GMW-23	<2	<2	<2	<5	<5	<5	<5
04/30/04	GMW-23	<2	<2	<2	<5	<5	<5	<5
05/27/04	GMW-23	<2	<2	<2	<5	<5	<5	<5
06/25/04	GMW-23	<2	<2	<2	<5	<5	<5	<5
07/19/04	GMW-23	<2	<2	<2	<5	<5	<5	<5

COMPLETE LIST OF GROUNDWATER MONITORING DATA								
QUARTERLY WELL MONITORING DATA FOR VOGEL SITE								
DATE	WELL #	BENZENE	TOLUENE	E-BENZENE	XYLENE	MEK	CH2CL2	1,2-DCP
12/15/98	MW-1	<2	<2	<2	<5	<5		
03/26/99	MW-1	<2	<2	<2	<5	<5		
09/29/99	MW-1	<2	<2	<2	<5	<5		
12/23/99	MW-1	<2	<2	<2	<5	<5		
03/29/00	MW-1	<2	<2	<2	<5	<5		
06/29/00	MW-1	<2	<2	6	10	<5		
07/21/00	MW-1	<2	<2	<2	<5	<5		
01/03/01	MW-1	<2	<2	<2	<5	<5		
03/27/01	MW-1	<2	<2	<2	<5	<5		
06/29/01	MW-1	<2	<2	<2	<5	<5		
10/04/01	MW-1	<2	<2	<2	<5	<5		
12/14/01	MW-1	<2	<2	<2	<5	<5		
03/29/02	MW-1	<2	<2	<2	<5	<5		
06/27/02	MW-1	<2	<2	<2	<5	<5		
09/26/02	MW-1	<2	<2	<2	<5	<5		
12/11/02	MW-1	<2	<2	<2	<5	<5		
03/26/03	MW-1	<2	<2	<2	<5	<5	<5	<5
06/12/03	MW-1	<2	<2	<2	<5	<5	<5	<5
08/15/03	MW-1	<2	<2	<2	<5	<5	<5	<5
12/02/03	MW-1	<2	<2	<2	<5	<5	<5	<5
03/24/04	MW-1	<2	<2	<2	<5	<5	<5	<5
06/25/04	MW-1	<2	<2	<2	<5	<5	<5	<5
12/15/98	MW-3	<2	<2	<2	<5	<5		
03/26/99	MW-3	<2	<2	<2	<5	<5		
06/23/99	MW-3	<2	<2	<2	<5	<5		
09/29/99	MW-3	<2	<2	<2	<5	<5		
12/23/99	MW-3	<2	<2	<2	<5	<5		
03/29/00	MW-3	<2	<2	<2	<5	<5		
06/29/00	MW-3	<2	<2	<2	<5	<5		
07/21/00	MW-3	<2	<2	<2	<5	<5		
01/03/01	MW-3	<2	<2	<2	<5	<5		
03/27/01	MW-3	<2	<2	<2	<5	<5		
06/29/01	MW-3	<2	<2	<2	<5	<5		
10/04/01	MW-3	<2	<2	<2	<5	<5		
12/14/01	MW-3	<2	<2	<2	<5	<5		
03/29/02	MW-3	<2	<2	<2	<5	<5		
06/27/02	MW-3	<2	<2	<2	<5	<5		
09/26/02	MW-3	<2	<2	<2	<5	<5		
12/11/02	MW-3	<2	<2	<2	<5	<5		
08/15/03	MW-3	<2	<2	<2	<5	<5	<5	<5
	MW-4	(no product since 8/14/02)						
12/11/02	MW-4	80	40400	129200	440000	<5		
06/15/03	MW-4	<20	6740	16530	63900	<50	<50	<50
12/15/98	MW-5	<2	<2	<2	<5	<5		
03/26/99	MW-5	<2	<2	<2	<5	<5		
06/23/99	MW-5	<2	<2	<2	<5	<5		
09/29/99	MW-5	<2	<2	<2	<5	<5		
03/29/00	MW-5	<2	<2	<2	<5	<5		
07/21/00	MW-5	<2	<2	<2	<5	<5		
01/03/01	MW-5	<2	<2	<2	<5	<5		

COMPLETE LIST OF GROUNDWATER MONITORING DATA								
QUARTERLY WELL MONITORING DATA FOR VOGEL SITE								
DATE	WELL #	BENZENE	TOLUENE	E-BENZENE	XYLENE	MEK	CH2CL2	1,2-DCP
03/27/01	MW-5	<2	<2	<2	<5	<5		
06/29/01	MW-5	<2	<2	<2	<5	<5		
10/04/01	MW-5	<2	<2	<2	<5	<5		
12/14/01	MW-5	<2	<2	<2	<5	<5		
03/29/02	MW-5	<2	<2	<2	<5	<5		
06/27/02	MW-5	<2	<2	<2	<5	<5		
09/26/02	MW-5	<2	<2	<2	<5	<5		
12/11/02	MW-5	<2	<2	<2	<5	<5		
03/26/03	MW-5	<2	<2	<2	<5	<5	<5	<5
06/12/03	MW-5	<2	<2	<2	<5	<5	<5	<5
08/15/03	MW-5	<2	<2	<2	<5	<5	<5	<5
12/02/03	MW-5	<2	<2	<2	<5	<5	<5	<5
03/24/04	MW-5	<2	<2	<2	<5	<5	<5	<5
06/25/04	MW-5	<2	<2	<2	<5	<5	<5	<5
06/29/99	RW-101	<2	<2	<2	<5	<5		
06/29/99	RW-102	11	9690	7160	28900	370		
08/14/03	RW-102	<20	1020	3290	13400	<50	<50	<50
06/29/99	RW-103	<20	790	3590	15300	22		
08/01/03	RW-103	4	388	4930	12800	<50	<50	<50
08/07/03	RW-103	<2	320	3410	14300	<50	<50	<50
08/14/03	RW-103	<20	426	3610	15200	<50	<50	<50
06/22/98	RW-104	15	1210	5160	19200	n		
09/17/98	RW-104	11	1430	6290	15400	9		
06/29/99	RW-104	3	140	770	2680	<5		
08/01/03	RW-104+5	17	540	5810	12800	<50	<50	<50
08/07/03	RW-104+5	6	270	3690	12500	<50	<50	<50
08/14/03	RW-104	7	338	4260	14010	<50	<50	<50
08/01/03	RW-104+5	17	540	5810	12800	<50	<50	<50
08/07/03	RW-104+5	6	270	3690	12500	<50	<50	<50
08/14/03	RW-105	10	531	5130	17100	<50	<50	<50
07/21/00	TC-1	7	440	7380	17600	49		
removed	Dec. 00							
07/21/00	TC-2	<2	94	600	2510	<5		
01/03/01	TC-2	3	49	710	1550	<5		
03/27/01	TC-2	<2	2	<2	<5	<5		
06/01/01	DAMAGED							
07/21/00	TC-3	21	5800	8880	18700	95		
12/01/00	removed							
12/15/98	TC-6D	2	<2	3240	1490	<5		
03/26/99	TC-6D	<2	3	310	210	<5		
06/23/99	TC-6D	<2	2	96	92	<5		
03/29/00	TC-6D	<2	<2	<2	<5	<5		
06/29/00	TC-6D	3	91	520	1710	<5		
07/21/00	TC-6D	6	1520	3900	9940	<5		
01/03/01	TC-6D	5	19	2100	6110	<5		

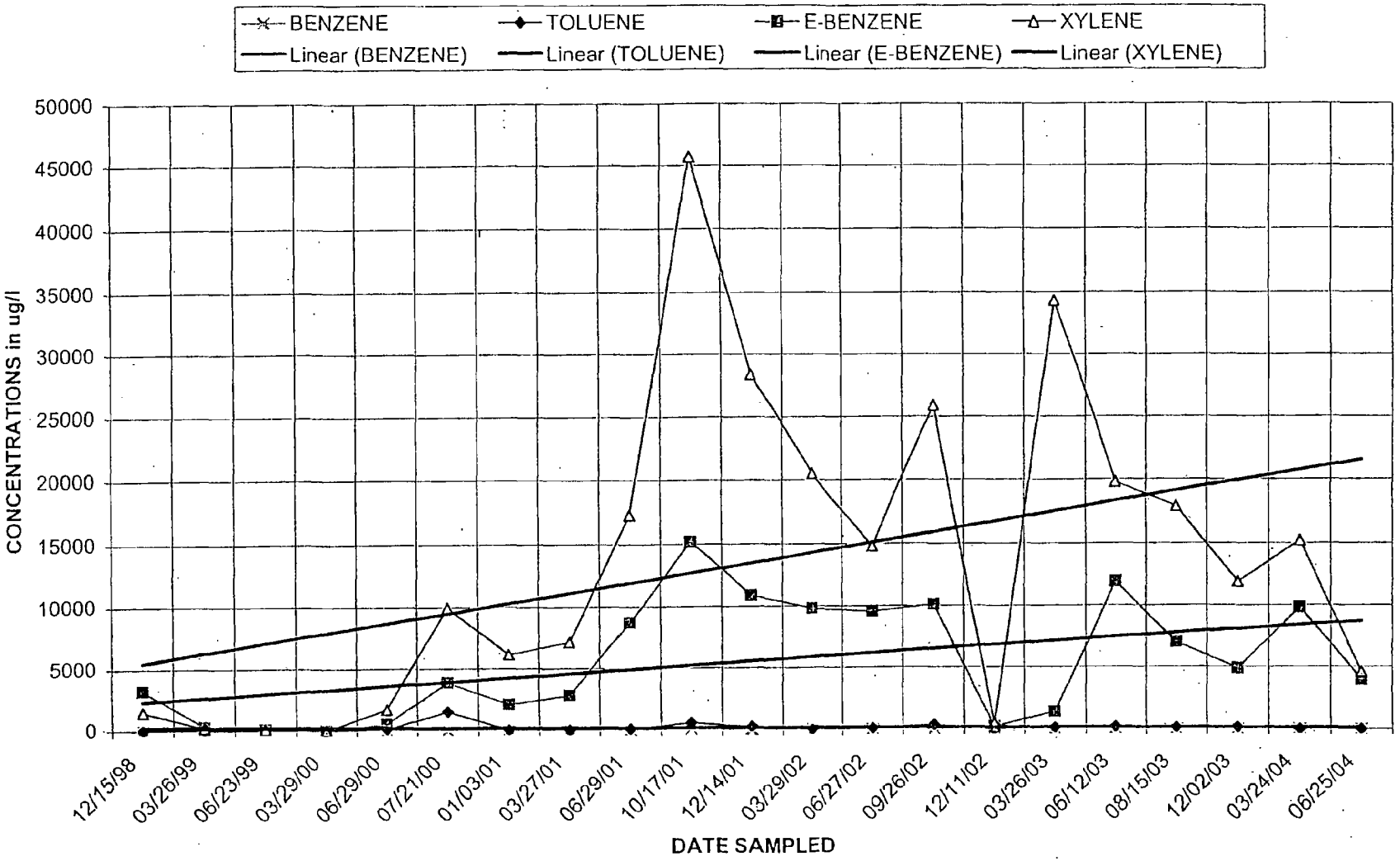
COMPLETE LIST OF GROUNDWATER MONITORING DATA								
QUARTERLY WELL MONITORING DATA FOR VOGEL SITE								
DATE	WELL #	BENZENE	TOLUENE	E-BENZENE	XYLENE	MEK	CH2CL2	1,2-DCP
03/27/01	TC-6D	2	21	2840	7110	<5		
06/29/01	TC-6D	24	95	8700	17300	<5		
10/17/01	TC-6D	65	580	15200	45700	<5		
12/14/01	TC-6D	<20	270	10900	28400	<50		
03/29/02	TC-6D	<20	<20	9790	20500	<50		
06/27/02	TC-6D	<20	102	9550	14800	<50		
09/26/02	TC-6D	15	370	10100	25900	<50		
12/11/02	TC-6D	<2	<2	230	483	<5		
03/26/03	TC-6D	<20	116	1400	34300	<50	<50	<50
06/12/03	TC-6D	<20	180	11900	19800	<50	<50	<50
08/15/03	TC-6D	<20	127	6970	17900	<50	<50	<50
12/02/03	TC6D	<20	151	4870	11900	<50	<50	<50
03/24/04	TC6D	<20	<20	9820	15200	<50	<50	<50
06/25/04	TC6D	<2	<2	3960	4580	<50	<50	<50
06/27/02	TC-6S	<2	<2	<2	24	<5		
09/26/02	TC-6S	<2	<2	<2	<5	<5		
12/11/02	TC-6S	<2	<2	<2	<5	<5		
03/26/03	TC-6S	<2	<2	<2	<5	<5	<5	<5
06/12/03	TC-6S	<2	<2	<2	<5	<5	<5	<5
08/15/03	TC-6S	<2	<2	<2	<5	<5	<5	<5
12/02/03	TC-6S	<2	<2	<2	<5	<5	<5	<5
03/24/04	TC-6S	<2	<2	<2	<5	<5	<5	<5
06/25/04	TC-6S	<2	<2	<2	<5	<5	<5	<5
01/03/01	TC-7	<2	<2	2	5	5		
06/29/01	TC-7	<2	<2	<2	<5	<5		
06/12/03	TC-7	<2	<2	<2	<5	<5	<5	<5
08/15/03	TC-7	<2	<2	<2	<5	<5	<5	<5
03/26/03	TC-7	<2	<2	<2	<5	<5	<5	<5
12/02/03	TC-7	<2	<2	<2	<5	<5	<5	<5
03/24/04	TC-7	<2	<2	<2	<5	<5	<5	<5
06/25/04	TC-7	<2	<2	<2	<5	<5	<5	<5
06/29/94	TC-8	51	16100	17800	35700	897		
REMOVED DURING 1994 EXCAVATION								
12/04/95	TC-9	<2	<2	<2	<5	<5		
06/01/99	**removed**							
12/15/98	TC-10	<2	<2	<2	<5	<5		
06/23/99	TC-10	<2	<2	<2	<5	<5		
09/29/99	TC-10	<2	<2	<2	<5	<5		
12/23/99	TC-10	<2	<2	6	12	<5		
03/29/00	TC-10	<2	<2	<2	<5	<5		
06/29/00	TC-10	<2	<2	9	20	<5		
07/21/00	TC-10	<2	<2	<2	<2	<5		
01/03/01	TC-10	<2	<2	<2	<2	<5		
06/29/01	TC-10	<2	<2	<2	<2	<5		
08/06/99	TC-11	<2	<2	<2	<5	<5		
06/01/99	**removed**							

COMPLETE LIST OF GROUNDWATER MONITORING DATA								
QUARTERLY WELL MONITORING DATA FOR VOGEL SITE								
DATE	WELL #	BENZENE	TOLUENE	E-BENZENE	XYLENE	MEK	CH2CL2	1,2-DCP
08/06/99	TC-12	<2	<2	<2	<5	<5		
06/01/99	**removed**							
02/28/96	TC-13	<2	30	300	1420	<2		
06/01/99	**removed**							
07/03/84	TC-14				34000			
10/04/84	TC-14		1100	12000	35000	18000		
05/31/85	TC-14		1600	12000	11000	39000		
10/10/85	TC-14		1100	3500	31000	25000		
02/26/86	TC-14		2000	11000	16000	33000		
05/15/86	TC-14		810	4900	12000	32000		
08/20/86	TC-14		930	4700	20000	13000		
11/25/86	TC-14		940	5200	31000	9500		
02/17/87	TC-14		1500	3900	28000	4800		
06/15/87	TC-14		1600	2100		3400		
06/18/92	TC-14	<5	42	<5	61	<5		
02/28/96	TC-14	<20	1040	2860	8520	530		
09/20/97	**removed**							
02/28/96	TC-15	<20	620	5930	21800	510		
12/20/02	**removed**							
07/21/00	TC-16	<2	130	540	1950	<5		
12/20/00	**removed**							
07/21/00	TC-17D	<2	<2	32	89	<5		
01/03/01	TC-17D	<2	<2	9	12	<5		
06/29/01	TC-17D	<2	3	36	114	<5		
10/04/01	TC-17D	<2	<2	<2	<5	<5		
12/14/01	TC-17D	<2	<2	<2	<5	<5		
03/29/02	TC-17D	<2	<2	202	535	<5		
06/27/02	TC-17D	<2	4	510	1370	<5		
09/26/02	TC-17D	<2	<2	<2	40	<5		
12/11/02	TC-17D	<2	119	158	637	<5		
03/26/03	TC-17D	<2	<2	24	71	<5	<5	<5
06/12/03	TC-17D	<20	<20	2240	7190	<50	<50	<50
08/15/03	TC-17D	<20	<20	511	1370	<50	<50	<50
03/29/02	TC-17S	<2	<2		<5	<5		
06/27/02	TC-17S	<2	<2	<2	10	<5		
09/26/02	TC-17S	<2	<2	<2	<5	<5		
12/11/02	TC-17S	<2	<2	<2	<5	<5		
03/26/03	TC-17S	<2	<2	<2	<5	<5		
06/12/03	TC-17S	<2	<2	<2	<5	<5	<5	<5
08/15/03	TC-17S	<2	<2	<2	<5	<5	<5	<5
03/27/01	TC-20	2	<2	15	150	<5		
08/15/03	TC-20	<2	<2	<2	<5	<5	<5	<5
08/15/03	TC-22D	<2	<2	<2	<2	<5	<5	<5
12/02/03	TC-22D	<2	<2	<2	<2	<5	<5	<5
03/24/04	TC22D	<2	<2	<2	<2	<5	<5	<5
06/25/04	TC22D	<2	<2	<2	<2	<5	<5	<5

COMPLETE LIST OF GROUNDWATER MONITORING DATA								
QUARTERLY WELL MONITORING DATA FOR VOGEL SITE								
DATE	WELL #	BENZENE	TOLUENE	E-BENZENE	XYLENE	MEK	CH2CL2	1,2-DCP
12/15/98	TC-23	<2	<2	<2	<5	<5		
03/26/99	TC-23	<2	<2	<2	<5	<5		
06/23/99	TC-23	<2	<2	<2	<5	<5		
09/29/99	TC-23	<2	<2	<2	<5	<5		
12/23/99	TC-23	<2	<2	6	10	<5		
03/29/00	TC-23	<2	<2	<2	<5	<5		
07/21/00	TC-23	<2	<2	<2	<5	<5		
01/03/01	TC-23	<2	<2	<2	<5	<5		
03/27/01	TC-23	<2	<2	<2	<5	<5		
06/29/01	TC-23	<2	<2	<2	<5	<5		
10/04/01	TC-23	<2	<2	<2	<5	<5		
12/14/01	TC-23	<2	<2	<2	<5	<5		
03/29/02	TC-23	<2	<2	<2	<5	<5		
06/27/02	TC-23	<2	<2	<2	<5	<5		
09/26/02	TC-23	<2	<2	<2	<5	<5		
12/11/02	TC-23	<2	<2	<2	<5	<5		
03/26/03	TC-23	<2	<2	<2	<5	<5	<5	<5
06/12/03	TC-23	<2	<2	<2	<5	<5	<5	<5
08/14/03	TC-23	<2	<2	<2	<5	<5	<5	<5
12/02/03	TC-23	<2	<2	<2	<5	<5	<5	<5
03/24/04	TC-23	<2	<2	<2	<5	<5	<5	<5
06/25/04	TC-23	<2	<2	<2	<5	<5	<5	<5

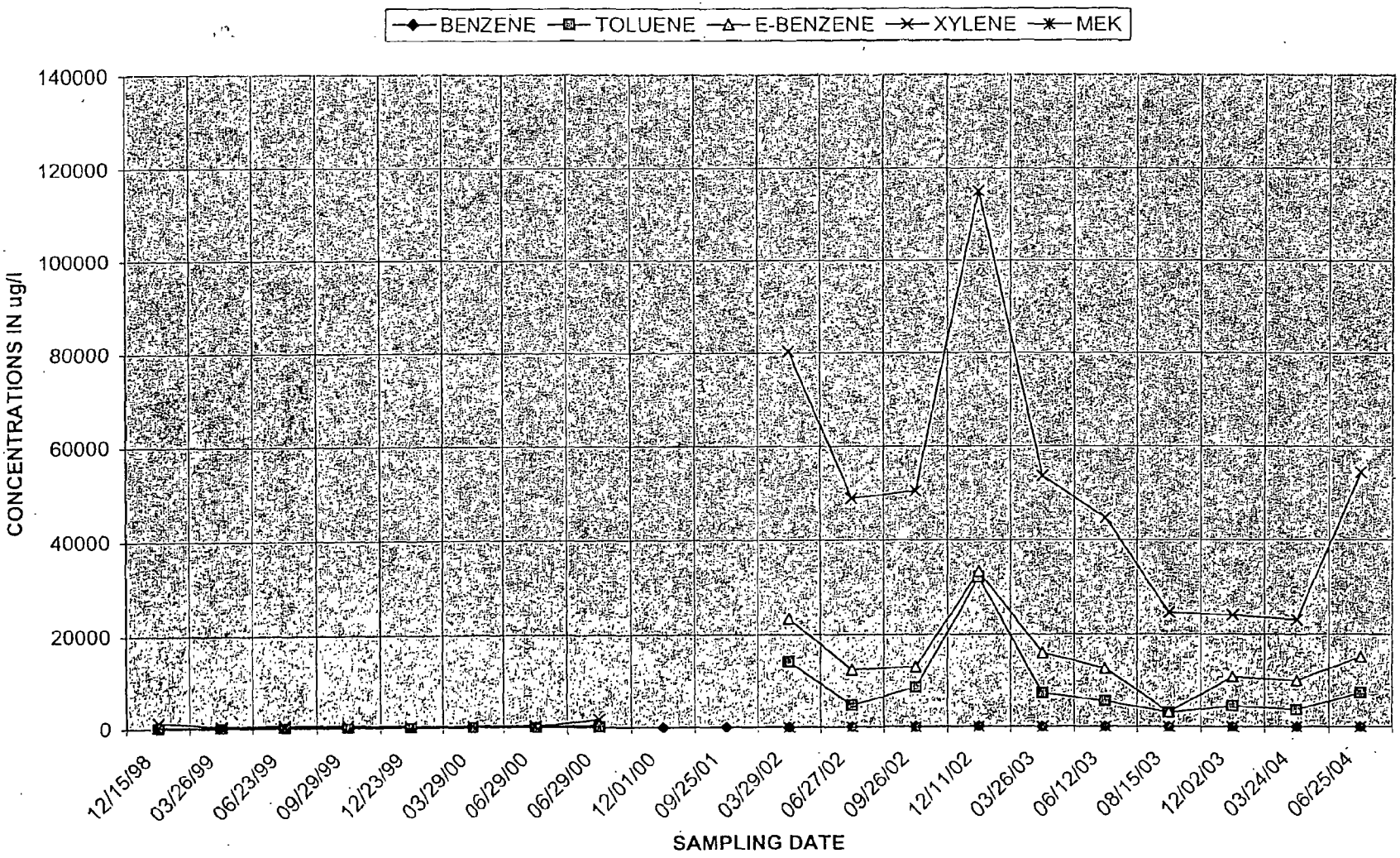
INTERIOR MONITORING WELL

VOGEL TC-6 AFTER 2000 EXCAVATION



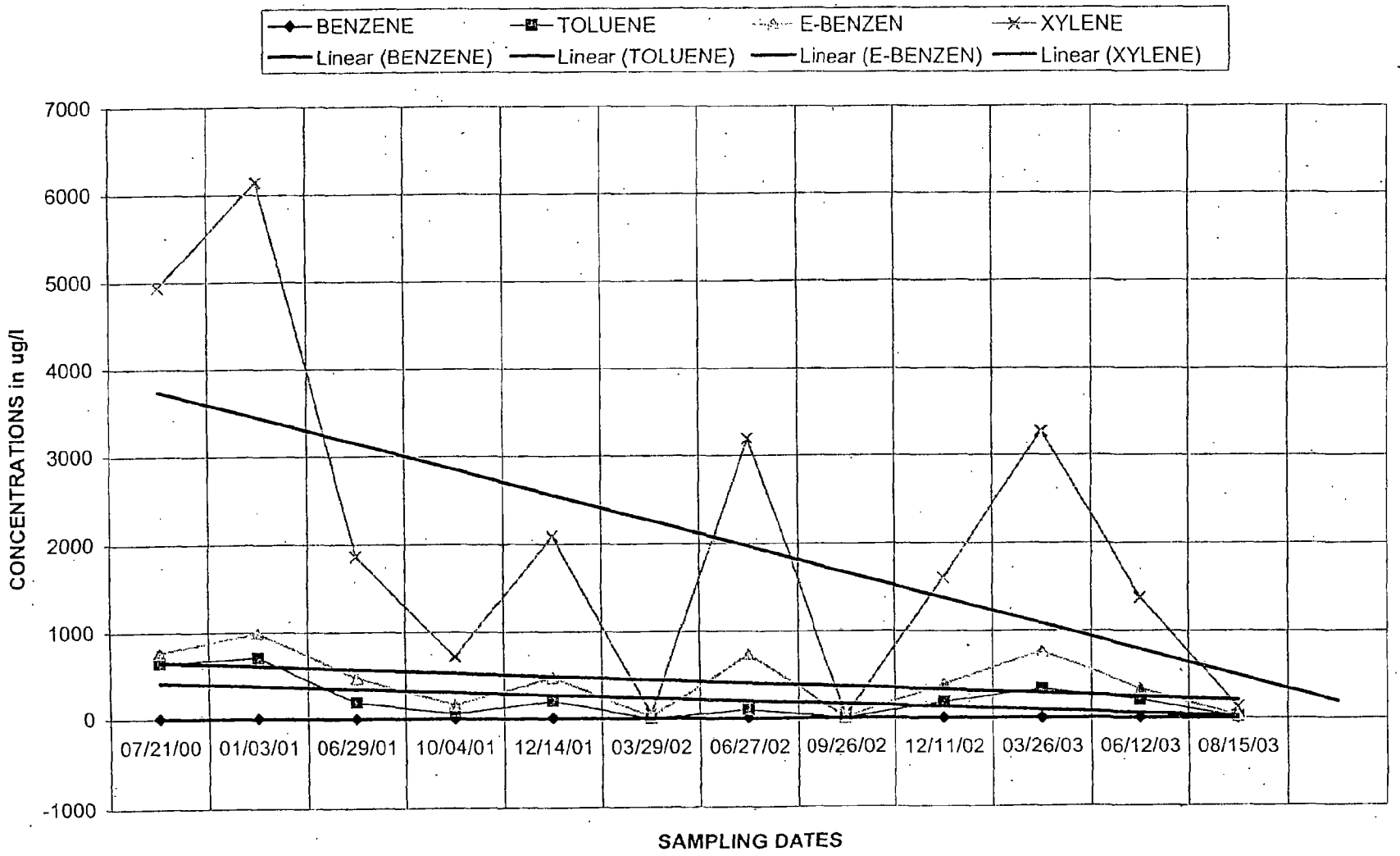
INTERIOR MONITORING WELL

VOGEL GMW-9



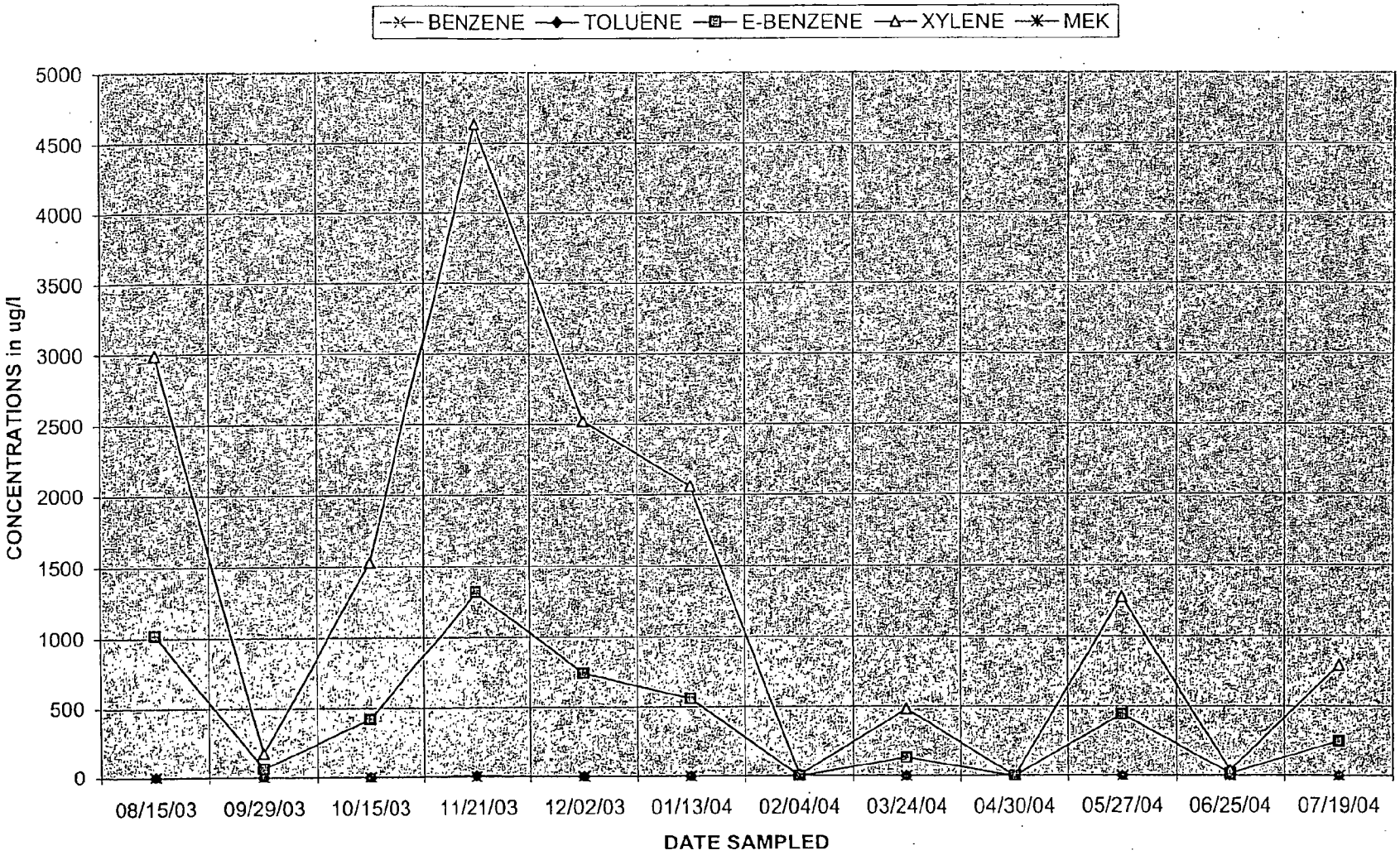
INTERIOR MONITORING WELL

VOGEL GMW-11



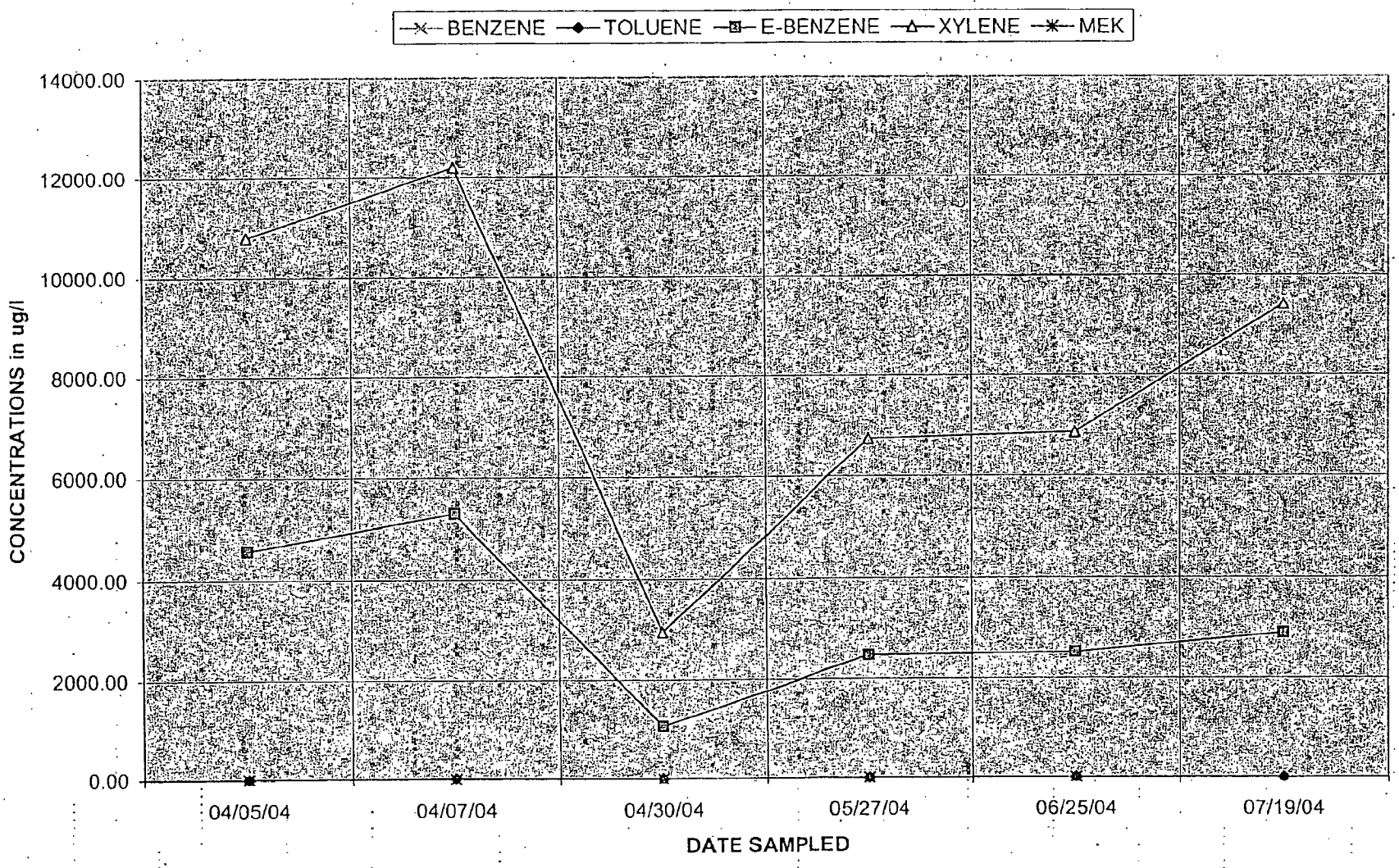
DOWNGRADIENT PERIMETER MONITORING WELL

GMW-20 (TW-5)



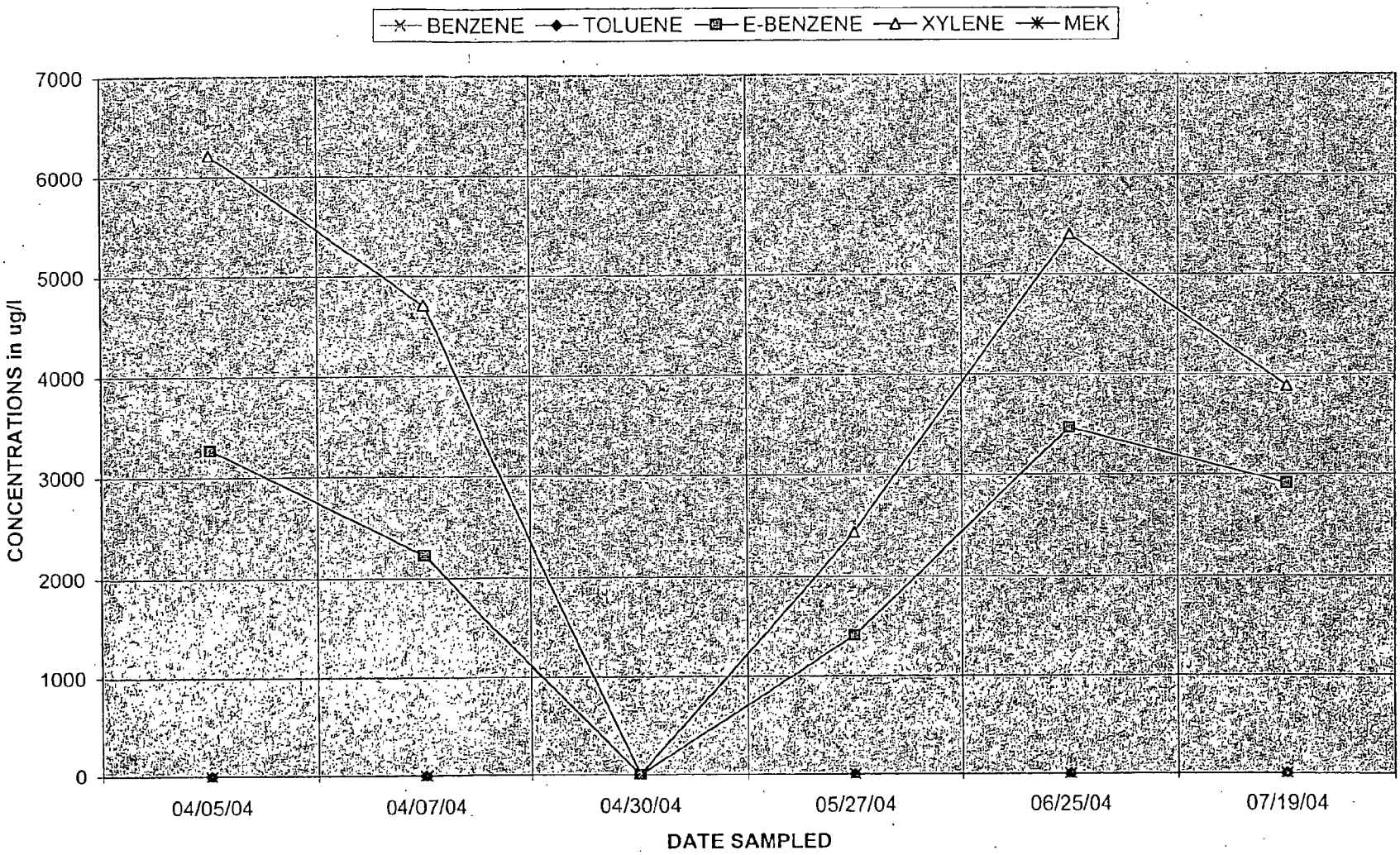
DOWNGRADIENT PERIMETER MONITORING WELL

GMW-21



DOWNGRADIENT PERIMETER MONITORING WELL

GMW-22



DOWNGRADIENT PERIMETER MONITORING WELL

GMW-23